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ABSTRACT

This theme issue discusses the special needs of gifted students at the middle school level. It presents several articles, editorials, a California funding update, a program spotlight, an educator profile, a column on educational technology, and a book review. An article by Terry A. Thomas, titled "Middle School Madness," discusses middle schools' insensitivity and unresponsiveness to the needs of gifted youth and describes a summer program of accelerated classes to develop the academic talents of middle school students. "Developing Leadership during the Middle School Years" (Margaret Gosfield) describes a leadership training program that involves classroom training, problem solving and decision making activities, individual community service, Volunteer Day, and a leadership conference. "Middle School Survey Report: Impact on Gifted Students--Executive Summary" (Mary Ruth Coleman and James J. Gallegher) presents results of a survey of the attitudes of educators from the middle schools movement and gifted education. Other articles include: "World Class Standards for Middle School Students Who Are Gifted" (Julia Roberts); "Differentiating the Curriculum at Twin Peaks Middle School" (Lynn Astengo); "Middle School Demonstration Sites" (Ron Fontaine and Bill Jones); and "Curriculum Integration at The Mirman School" (Richard Boolootian). (Most papers contain references.) (JDD)

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COMMUNICATOR

MIDDLE SCHOOL GIFTED

ED 365 037

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Middle School Madness

by Terry A. Thomas

Some middle schools today present a hostile environment for gifted students. There are a few beacons of enlightenment where all students, including the gifted and talented, are given the academic challenge they require, but these middle schools are rare. Most middle schools serve the primary function of warehousing bright young adolescents, as if they were waiting for adolescence to end. The outcome can be intellectually, socially and emotionally hazardous to gifted students.

The Needs of Gifted

The literature is rich with descriptions of the needs of gifted children. Most experts agree that the needs of gifted and talented adolescents are different than the needs of other students in degree rather than in kind. Adolescents need challenge and stimulation. As with most of us, they want to be engaged in activities that are interesting and meaningful to them. They need to test their abilities in an environment that is psychologically safe. Belonging takes on new meaning as they begin to question who and what they are. Peer acceptance can become an overpowering urge which places heavy demands on students to conform with group norms. Gifted adolescents need all of the above, plus a good bit more. Academically, they need depth, complexity, and pace. They need instruction that is differentiated to meet their needs. Socially, they need acceptance through associations with their peers who may not be their agemates. Why do so many middle schools miss the target? Why are middle schools insensitive and unresponsive to the needs of their

Continued on page 27

Developing Leadership During The Middle School Years

by Margaret Gosfield

How often have we heard the phrase, "these are our future leaders" in reference to gifted students? Indeed, developing future leaders is a primary argument in support of the need for special programs for gifted. And yet, we seldom find specific programs designed to train students for leadership within our GATE programs.

Ventura Unified School District has been developing such a leadership training program for the past several years through the efforts of a core of GATE teachers. Some of them have been teaching GATE classes for many years, while others only recently became involved; but all are committed to the belief that, while math, language arts, social science or reading are the academic courses they teach, leadership training is also an essential component of the curriculum.

These teachers believe that the middle school years are especially appropriate for leadership training. The students are old enough to take advantage of the benefits that formal training can provide at an age when most are open to new ideas. Furthermore, waiting until the high school years may be too late. Students wishing to apply to the University of California or colleges of comparable quality, often have high school schedules so filled with academic requirements that there is little time for specific leadership training.

The Ventura leadership training program developed incrementally and continues to evolve and expand. At present it is comprised

Continued on page 30

CONFERENCE CALENDAR

April 23-24, 1993
Association for the Education of Gifted Underachieving Students (AEGUS)
6th Annual National Conference
High Potential At Risk: Taking a Positive Approach
Portland State University, Portland, Oregon
For information call 206/230-5372

July 19-30, 1993
Confratute '93,
Annual Summer Institute on the Gifted and Talented
University of Connecticut, Storrs, CT
For information call 203/486-4826

August 2-6, 1993
Rimm Underachievement Institute
How to Help Bright Underachieving Children
Milwaukee Marriott, Brookfield Wisconsin
For information call 800/475-1118

August 8-12, 1993
10th World Congress on Gifted and Talented Education
A Gifted Globe
Royal York Hotel, in the heart of Toronto, Canada
For information call 416/978-2400

Schedule of CAG-sponsored events

April 3	**Executive Committee** meeting, LAX Hilton, 10 AM to 4 PM
April 13/15	**Observation at Rose Avenue School** (elementary), Oxnard SD
April 20	**Observation at M.L. King Jr. JHS,** Grant Union HSD, Sacramento
April 21/22	**Observation at West High School,** Bakersfield
April 22	**Observation at Stockdale High School,** Bakersfield
April 23-25	**Board meeting,** Beverly Heritage Hotel, Costa Mesa (Orange County)
April 23-25	**Catalina trip,** rescheduled #1
April 28	**Observation at Luther Burbank Middle School,** Burbank
Apr. 30-May 2	**Leadership Camp at Camp Nawakwa**
May 1	**GATE Mini-conference,** Durham CA Call Alison Watson for info, 916/895-4695.
May 7	**Observation at Olive Peirce Middle School,** Ramona
May 7-9	**Catalina trip,** rescheduled #2
May 14-16	**Leadership Camp at Camp Lassen,** Butte Meadows
July 11-24	**California in the 21st Century,** Summer Seminar, Westmont College

IN THIS ISSUE

Topical articles

Middle School Madness
Terry Thomas 1

Developing Leadership During the Middle School Years
Margaret Gosfield 1

Right in the Middle
Jean Drum 4

World Class Standards for Middle School Students who are Gifted
Julia Roberts 7

Model Middle – The Greatest School for Gifted Kids (and other kids too!) 9

Middle School Survey Report: Impact on Gifted Students
Mary Ruth Coleman and James Gallegher 12

Middle School Demonstration Sites
Ron Fontaine and Bill Jones 20

Curriculum Integration at the Mirman School
Richard Boolootian 25

Regular Features

President's Column
Sandra Kaplan 2

View From Sacramento
Barbara Brandes 6

Spotlight on Programs
Joseph Kerr Middle School: A Year Round School with a GATE Mission
Sharon Freitas 16

On the Light Side
Jean Watts 17

Spotlight on Profiles
A Consistent Commitment, Bruce DeVries 19

TechNet
Terrie Gray 21

From the Bookshelf
Book review by Jean DiGuilio 24

Erratum

The article *Nurturing Giftedness in Young Children* by Wendy C. Roedell in the November issue of the *Communicator* was mistakenly identified as being reprinted from *Patterns of influence on gifted learners, the home, the self, and the school,* pp. 13-28. New York: Teachers College Press. This article was an ERIC digest of those pages, E487, ED 321492.

PRESIDENT'S COLUMN

Sandra Kaplan

Among the many responses that students have to their giftedness is that of dis enfranchisement, or the lack of connection with their own abilities. This disenfranchisement from one's giftedness manifests itself in a variety of academic behaviors.

Some gifted students reject their giftedness by refusing to be active participants in the gifted program or differentiated curriculum. Some gifted students deny their giftedness by providing substantive evidence of their inability to perform as teachers perceive that gifted students should. Other gifted students disaffiliate from their giftedness by continually requesting affirmation of their performance by asking teachers and peers if their work is "good" or correct. This insecurity often ignites a teacher's inquiry into information which would verify the student's giftedness and placement in a gifted program.

The disenfranchised gifted student is apathetic toward academic endeavors, reluctant to participate and susceptible to failure. Basically, the students who are disenfranchised from their giftedness are unwilling to accept responsibility for their ability.

There are many reasons why gifted students' disenfranchisement from their giftedness is noted during the middle school years. One factor which contributes to the appearance of this problem is the avoidance of academic discussions about the nature of giftedness and the individual's personal responsibility toward one's gifts. At middle school and in the current educational climate, discussions of the "G" word are limited and services for gifted students sometimes are devalued. Gifted students can be indirectly encouraged to relinquish their responsibility for their giftedness under such conditions.

Learners who disenfranchise themselves from their ability need curricular experiences and opportunities that clarify the dimensions of giftedness and support them in applying their abilities. Integrated into the services provided gifted students should be opportunities to:

- explore the differences between concepts of true scholarliness and scholarship for the sake of obtaining grades
- read about and discuss the lives and contributions of gifted people
- study the wonder of the learning process
- inquire into the variables related to motivation theory
- collaborate and share experiences with their academic peers
- observe the valued work of gifted people displayed in museums, etc.

Disenfranchised gifted students have made conscious decisions to disassociate themselves from their giftedness. They become part of the hidden gifted population who often do not surface again to fulfill their potential.

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Submission of material

CAG encourages all interested parties to submit articles for publication. All submissions will be given careful consideration. Photos and camera-ready art work are particularly desirable. Student work should be accompanied by teacher's name and school. Send all material with your name, address, and phone number to Jean Drum, *Communicator* Editor, 7822 Belgrave Avenue, Garden Grove, CA 92641. You may phone Ms. Drum at 714/892-1745.

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Right in the Middle

by Jean Drum, Editor

Jean Drum

The California Department of Education has released three reports dealing with educational reform in our state. The report dealing with the elementary grades is titled *It's Elementary.* Ah, think its readers, what a clever title that is, with its play on words and its implication that the crafting of a good elementary curriculum is easily within our reach. The document dealing with secondary education is titled *Second to None,* another upbeat approach with the promise of great things. The report on the third area of education is quite another matter – *Caught in the Middle.* What a place to be! Who wants to be "caught in the middle" of anything?

On the other hand, think about it. Middle school. Junior high school. Intermediate school. Grades five to eight. Grades six to eight. Grades seven and eight. If the educators responsible for them are having such a hard time figuring out what to call their school and even how old they ought to be when they go there, can we wonder that the kids themselves seem confused?

Caught in the Middle discusses the "wide range of intellectual, physical, psychological, and social development" found in the young adolescents of middle school age and the importance of "a caring transition as they move from elementary school to high school" and instruction which "emphasizes academic integrity." These are high goals, and if the task force recommendations can be put into effect, we can expect satisfying educational and social outcomes, so that these kids will no longer be "caught" in the middle.

As educators (both in the schoolroom and in the home) of gifted adolescents, we can applaud the general aims of reform in the middle schools, but we also recognize the importance of keeping a watch on the special needs of our group, and *Caught in the Middle* does not spend much space addressing the question of the gifted middle school student. The "right of every middle grade student to have the opportunity to master the highest and best curricula offered in each of the middle grades" is promised, and "grouping by skill level for.. accelerated learning on the basis of valid, specific instructional purposes and for stipulated periods of time" is provided for. However "heterogeneous grouping practices should be normative in middle grade classrooms." Cooperative learning and peer tutoring are stressed as the way to achieve maximum learning for all students of all abilities, and just about the only reference to "capable students" in the entire document says they "can assist others" in a cooperative learning group.

At this point, another look at the term "cooperative learning" might bear some fruit. This teaching strategy appeared in part as an answer to the complaints of industry that workers coming out of our school systems were deficient in the skills need to work together to solve problems. Cooperative learning was devised as a way to meet this need, and while there are variations in specific practices, the general model consists of a group of four students, one of whom is considered high ability, two of middle ability, and one lower ability. The group is given a task, and the expected outcome is that all members of the group will learn a new idea or skill. However, this cannot be said to be a particularly realistic model to ready students to contribute to the work place.

If a business wants an employee to "learn" something, it assigns someone who already knows how to teach that skill or process. "Sue, I want you to show Joe how that new computer program to keep track of our inventory works." It's an efficient method and it makes the best use of talent and knowledge. When a business wants to develop a new product, put together an advertising plan, or figure out how to streamline a process, they use cooperative *problem solving.* They need people who can work together, give and take, and share ideas and knowledge. When a business does this, it puts together a group with the skills and knowledge necessary to solve this particular problem. There may be a wide variety of skills and knowledge held by the members of the group, but they all are contributing on an equal basis, and the primary goal is the solution of the problem rather than individual growth for any member of the group. This is an extremely useful activity in just about every area of life, from a meeting of the President's Cabinet to a discussion in a Girl Scout troop of their next camp-out, and developing the skills necessary for working in this kind of group is an excellent activity for the classroom. However, the distinction between solving a problem as the major goal and learning as the major goal should be kept firmly in

mind. Of course it goes without saying that in the largest sense everything we do involves learning something, so the participants in a problem-solving group are going to learn a good deal along the way. But the fact remains that learning new material is incidental and not the main purpose of the group.

If an English teacher wants to have a group of students discuss the conflict between the characters of a novel and how it leads to the outcome of the story, all of the student must have read the book in order to be full participants and make sensible contributions. If a history teacher wants a group to make a model of the battlefield at Gettysburg on a large piece of plywood and then explain the progress and outcome of the battle to the class, all of the members of the group need to be familiar with the battle in order to contribute fairly and meaningfully. "Fairly and meaningfully" are key words here, especially in a school setting. It may be argued that the "capable students" can read about the battle and narrate the action, while the "less capable" students paint the plywood and glue down the trees, and thus everyone participates and cooperates, but we are kidding ourselves if we think that the painters and gluers don't realize that they have been given a lesser responsibility and draw the exact self-esteem-damaging conclusions that educators want to avoid.

The other strategy urged for the middle school is peer tutoring. This is a widely used teaching device which takes many useful forms. Older students can teach younger students. A student who has already learned something can explain it to a classmate (often in the time-honored way of answering the whispered question, "What did she say the next step was?"). Also time-honored is the practice of using the kids who learned it after the first explanation to explain to the ones who didn't. This keeps them occupied while the teacher is busy with other tasks and may save the teacher the trouble of re-explaining it. Now these strategies, once driven by a student's reluctance to admit to the teacher that he didn't understand or a teacher's desperation to keep kids busy and quiet, have been elevated to the status of desirable teaching practices, especially at the middle school level. It is pointed out that older or more knowledgeable students often discover how superficial their knowledge is when they attempt to teach something they think they know, and this is certainly a valuable result of peer tutoring. Pride in being able to help and the growth of a more caring school atmosphere are also mentioned as results of a peer tutoring program, and these too are desirable effects. Less entrancing is the suggestion that peer tutoring is a wonderful way for a school district to save money by using students instead of having to hire more teachers. Peer tutoring as a part of the learning experience where pride and helping are emphasized is one thing. Using students as unpaid teachers for a significant part of their day is quite another, especially when the temptation to use gifted students this way is bound to be almost irresistible. It is vitally important that *all* students use the greatest portion of their time in school pushing the limits of learning as far as they can go, and while peer tutoring can provide valuable learning experiences and social skills when used in a properly limited way, it should never be allowed to use up time when a student could be moving ahead in learning. Further, the people of a state need to take proper fiscal responsibility for public education, and obscuring the need for adequate financing by using student tutors as part of a "cost effective" funding policy is unconscionable.

So when the girls are worrying about their complexions, and the boys are worrying about their voices changing, and the teachers are muttering about "raging hormones," and the parents are trying to find out if the words to that rock song really are what they are afraid they are, what is a school to do? Let's try the word *flexibility*. That "wide range" mentioned in *Caught in the Middle* is just crying for a flexible system, and the middle school schedule is perfect for that. Students who move from class to class and from teacher to teacher can be grouped for instruction in dozens of different ways each week (maybe even each day.) How about a large, heterogeneous, multi-teacher, several hour language arts block with kids reading in groups according to ability some of the time, peer tutoring some of the time, sharing presentations part of the time, and working on individual projects part of the time, but always stretching their limits without limiting any one else's stretch. Work out a deal with the nearest high school to let kids go there for a class if that's what they need for stretching, or perhaps share faculty with the high school. A system that is based on flexibility doesn't hold any student down, doesn't push any student farther that she's ready to go, doesn't label any student, doesn't trap anyone in a track forever, and doesn't catch students anywhere, least of all in the middle.

THE VIEW FROM SACRAMENTO

Barbara Brandes

I don't know how many times I have begun this column by acknowledging that these are tough times for public education generally and for gifted and talented education in particular. Now is certainly no exception. Yet every day I am heartened in some way by the dedication — even the optimism and passionate commitment — which I see in colleagues. I certainly felt this way when we hosted a meeting in the fall of the recipients of the mini-grants from Project Open-GATE. These educators had competed successfully for very small grants to implement activities related to the essential purposes of the Jacob Javits Gifted and Talented Students Education Program — mainly to improve services for underrepresented students. I trust that projects are going well for those of you engaged in this important work.

We know that there is a great deal of anxiety about the status of GATE in the budget process this year. The California Department of Education, along with CAG, is opposing inclusion of GATE in a mega-item for categoricals as was proposed in the Governor's Budget. We are also receiving many telephone calls with questions about application requirements both for districts that currently receive GATE funds and for districts not currently funded. The following information is based on an assumption that efforts will be successful during the budget process to keep GATE out of a mega-item which would override administrative decisions about allocating GATE funds.

The tentative plan is to require only the GATE Data Application Update from districts that are currently funded. Although we are at the beginning of a new three-year application cycle for GATE in 1993-94, the program will sunset in 1994. Rather that require a full application that would be valid for only one year, we will be asking for the type of information annually reported in the application update. Information and forms related to the application extension process should be mailed out in March.

There are 327 districts that do not currently receive GATE funds even though the Legislature augmented the GATE budget in 1989 to fully fund the program and open it to all districts. Following this budget augmentation many districts did apply for and receive GATE funds. It is likely that there will be an opportunity for districts not currently funded to again consider applying for funds. Information related to the application process will be sent out this spring. Of course, the addition of new districts would have a fiscal impact on currently funded districts since the total state allocation for GATE would be the same. All of this adds uncertainty to an already difficult situation.

I am looking forward to a meeting of all the State Directors of gifted programs that is being convened by the U.S. Department of Education at the beginning of March. We will have an opportunity to preview the long-awaited federal report on gifted education which is likely to help set policy directions for programs throughout the country. This document will be helpful for us to draw upon as we plan for the reauthorization process in 1994.

Barbara Brandes is State Director for Gifted and Talented Education, CDE.

Good at Math

Encyclopedias are good at math because they know their facts.

Watches are good at math because they know their times.

Kangaroos and bellboys are good at math because they carry.

Police are good at math because they solve problems.

Erasers are good at math because they take away stuff.

Leftovers are good at math because they know their remainders.

Lawyers are good at math because they can make a point.

Bill Clinton is good at math because he is trying to make differences.

Supermarkets are good at math because they have lots of products.

Broken bones are good at math because they know fractions.

Cooks are good at math because they can make pi.

Pencils are good at math because they show their work.

Musicians are good at math because they know their chords.

A baby is good at math because it is acute creature.

Building blocks are good at math because they can add up.

Lightbulbs are good at math because they are bright.

Surgeons are good at math because they know all of the operations.

Farmers are good at math because they produce products.

Scientists are good at math because they know their formulas.

A joint project of Helene Semchuck's 8- and 9-year olds at The Mirman School.

BEST COPY AVAILABLE

World Class Standards for Middle School Students Who Are Gifted

by Julia Roberts

Much talk inside and outside of educational circles centers around world class standards. This conversation concerns education at all levels. This article focuses on issues which must be resolved if students will be afforded the possibility of reaching world class standards and on learning opportunities which will enhance the education of middle school students, including young people who are gifted.

World class standards conjure up various images. Ice skaters anxiously awaiting the judges' scores after the championship round of the Olympics. Basketball players running the floor in the finals of an NCAA tournament. Actors awaiting the announcement of the Oscars. These images are less distinct when the concept of world class standards is applied to middle school students and academic talent. In the name of education reform, there is a need to develop standards with enough specificity to provide challenge and direction. World class standards are not vague, nor are they static. The bar is continually raised as high jumpers reach new heights.

For anyone who believes in individual differences, it is obvious that one set of standards cannot appropriately challenge all students. It would be equally outrageous to require all seventh grade students to wear a size seven shoe. Recognizing individual differences should make educators and politicians set world class standards at two or three levels so that each student will have an appropriate challenge. It is time to move beyond minimum standards and stretch all students, including the gifted, to new heights and to truly world class standards.

The middle school years are a critical time for students. The Carnegie Report entitled *Turning Points: Preparing Youth for the 21st Century* stated that "middle grade schools...are potentially society's most powerful force to recapture millions of youth adrift, and help every young person thrive during adolescence. Yet all too often these schools exacerbate the problems of early adolescence" (*Turning Points...*, p 8). Another report, *No Gifts Wasted: Effective Strategies for Educating Highly Able, Disadvantaged Students in Mathematics and Science*, emphasized the tragedy of school failure. The report stated that "when disadvantaged children show promise in school, their loss to low expectations, boredom, and lack of support is doubly disturbing."

In addition to the cautions raised by the national reports in the late 1980's, the National Education Goals have established an agenda for excellence in our nation's schools. Two of the goals have clear implications for standards of excellence.

- By the year 2000, American students will leave grades four, eight, and twelve having demonstrated competency in challenging subject matter, including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so that they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.
- By the year 2000, U. S. students will be first in the world in science and mathematics achievement.

To reach these two of the six goals of America 2000, world class standards must be set, and educators must ask the key questions: Are middle school students, including those who are gifted, learning what they need to learn and are ready to learn? What strategies need to be in place in middle schools across the country to ensure that high expectations raise the floor of learning and that the ceiling of learning is lifted, allowing students to soar in areas in which they have interests, strengths, and talents?

An array of services and strategies in middle schools will enhance opportunities for middle school students to reach standards of excellence. These options must include a challenging curriculum, flexible planning for individual students, advanced classes, an appropriate counseling component, a variety of extracurricular activities, and mentoring opportunities. In addition, middle school students should explore the community for opportunities to develop their talents and strengths outside school hours. Finally, colleges and universities may provide opportunities for advanced learning on the weekends and during summers.

A challenging curriculum must be the hallmark of excellent middle schools. This curriculum must combine rich content and appropri-

ate processes (thinking, problem solving, and research skills) to actively engage all students in learning and authentic assessment. A curriculum that is based on interdisciplinary themes provides a framework which has the power to challenge students and to develop lifelong learners. A variety of learning activities will allow students to learn at a pace and at a level of complexity at which each one is ready to learn. Curriculum which reaches world class standards will offer challenging content and process and will engage students in developing a wide variety of products. A challenging curriculum removes the ceiling to learning to allow each student to learn what he/she is ready to learn and what he/she needs to know.

Flexible planning for individual students ensures that each student can learn what he/she needs to know and be able to do. Flexible planning allows students to learn what he/she is ready to learn without barriers. A middle school student who is ready for high school mathematics or foreign languages must be given the opportunity to take a combination of classes traditionally taught to middle school and high school students. Flexible planning must be based on information about the student's strengths, interests, and talents. As individual planning is anchored in information about the strengths, interests, and talents of individual middle school students, it is possible to remove the ceiling to learning and to develop a variety of strengths, interests, and talents.

Advanced classes must be a core element in middle schools which would have world class standards. At the middle school level there are students who are ready for more advanced mathematics or more advanced work in other content areas, and world class standards of excellence will be reached only if advanced opportunities for learning are offered. Talent searches for middle school students have pioneered off-level testing (testing intended for an older age group) which removes the ceiling from assessment. As middle school students have taken the SAT or ACT through the talent searches, the results have shown that there are middle school students who have learned advanced content and reasoned at complex levels, and who are ready for advanced classes. These opportunities for advanced learning will allow young people to learn what they are ready to learn. Certainly, advanced classes will remove the ceiling to learning and encourage schools to move toward the goals of America 2000.

An appropriate counseling component is essential in schools reaching for world class standards. Counselors and teachers must understand the needs of middle school students who are gifted and have strategies for helping them aspire to appropriate goals. Counselors and teachers must recognize that the needs of gifted students are their strengths rather than their deficits. Building world class capacity involves the early identification of strengths, interests, and talents and developing them to their fullest potential. Counselors must work with students to explore appropriate personal and career goals based on individual strengths, interests, and talents. Appropriate counseling must lift the limits for middle school students. Counselors and teachers must recognize that social-emotional needs must be addressed if world class standards are to be achieved. They must know that, to quote Charlie Brown, "there is no heavier burden than a great potential."

A variety of extracurricular activities must be in place to develop strengths, interests, and talents of middle school students with authentic tasks and stimulating learning environments. Students who are inclined to view mathematics as an inviting challenge need opportunities to extend learning in activities such as Mathcounts. Odyssey of the Mind, Future Problem Solving, and Knowledge Master allow students to develop their gifts. In extracurricular activities student choice is the key. An array of extracurricular activities allows middle school students to engage in learning with no ceiling.

Mentoring is another strategy for extending learning beyond the classroom. Middle school students may be ready to explore possibilities in an interest or content area. If so, they will enjoy working with a mentor who shares their interests. Mentors can be college students, parents, or other adults. The key component in a successful mentorship is that the mentor and mentee share an interest and that both want to be involved. When mentoring is employed as a strategy, the ceiling to learning is lifted.

Discussion in education goes beyond standards and excellence to include equity. Is it equitable to offer the opportunities described above? Yes! If those opportunities are matched to individual student strengths, interests, and talents, middle schools move toward standards of equity **and** excellence. Learning opportunities must match and extend the interests of students, and they must match and develop their individual strengths and abilities. To do less is to prevent some middle school students from learning what they are ready to learn!

Julia Link Roberts, EdD, is director of The Center for Gifted Studies at Western Kentucky University. She directs summer programming for middle school students and has been director of a three-year Javits grant entitled "Enhancing Educational Opportunities of Gifted Middle School Students." The mailing address is Bowling Green, KY 42101. The phone is 502/745-6323.

Model Middle – The Greatest School for Gifted Kids (and other kids too!)

Good morning. It's great to have you visit Model Middle and see all the things we're doing here. Just stop in the office for a minute and get a visitor's pass, and we'll go right on to my first class.

We call this class the language lab. It's a double period, and we do all kinds of language activities here - reading, writing, speaking. We all like to read, but the really neat thing about this class is that we read books that we choose. My parents were really kind of worried about that at first. They thought we might spend the year reading nothing but dumb stuff – Sweet Valley High or great football heroes – but it isn't like that at all. First, we have a book list to choose from for most of our required reading. Some of the books on the list are ones that students have recommended over the years. Then the teachers asked people in various fields to recommend books about their subject that kids would like to read. The experts said they enjoyed picking books that they thought would say interesting things about their field *and* be fun to read. They add things to the list from time to time, and we let them know how we like the books, so the list changes. Even my mom likes reading some of my books. There are different kinds of fiction – mysteries, adventure, westerns, sci-fi, sports, even romances – and we have to read at least one in each category during the year. Sometimes a group of us will all read the same book and then meet and discuss it. Other times a group will read different books in the same category and discuss and compare them. Sometimes a discussion group will be like a talk show panel and have their discussion with the class as the audience. That's always fun. We have written assignments too – comparing books, discussing a character in a story, doing an outline of a sequel (or prequel) for a book, and of course we have to show good writing skills. We know that's part of what we need to learn, but doing it this way makes it more like real life and not just a class assignment. Some of our reviews get printed in our school newspaper, so it really is real life. Besides the required reading, we read our own books all the time too, and we keep a list of what we've read. Having a book that we're reading is just something that we do all the time.

Speaking of the newspaper, students do all the writing and publishing (our faculty advisor does check it over). We take turns doing reporting, editing, paste-up, graphics, and all the things you have to do to make a paper. This is a GATE class, but we have reporters from other classes who dig up news and write stories, photographers and artists who do graphics, and kids who type and help set it up in the computer desktop publishing program. That way the whole school gets involved. We get to know a lot of kids that way, and there's hardly anything that goes on in our school that we don't know about.

In the language class we do lots of public speaking too. We give speeches, debate, have panel discussions, and put on plays. This requires a lot of research, but you really have to know your subject if you don't want to end up looking silly in a debate. Kids from the regular English classes often join in these projects. We tape them on video tape, and then other classes can watch them, or we can even take them home for our parents to watch.

My grandpa is retired now, but he used to be an English professor, and he wonders if we really learn grammar. I told him that we learned that basic stuff in elementary school and our teachers expect us to use it now.

We are lucky here at Model Middle because we have a computer lab, and all GATE kids begin with a keyboarding class so that we really learn to type. Then we can go on to word processing skills and, if we want, to some programming. Of course, these classes are open to all the kids here if they want to take them, but we have to. We like it because it makes writing so much easier. We can use the computers at lunch time if we want, and the parents have organized the Computer Busters, where parents take turns supervising the computer lab after school so anyone can do homework there. We just have to bring our own paper. It's great!

Math is different here at Model Middle. Instead of being a whole year, or a semester, the classes change at the quarter. All the kids at the

school have to pass tests to show that they can do certain kinds of math. If you pass the test, you can either take the test in the next area, or you can take the next class. The tests themselves are even fun, believe it or not. We have to do some problems on paper, sometimes we can use a calculator and sometimes we have to show that we can do all the operations ourselves. Some of the problems are just the ordinary number problems, some are word problems, and some of them are puzzles we have to solve. For part of the test, we have to go out and do real things, like going to the store and finding out how much certain kinds of food cost per ounce to see which is the best bargain or figuring out how many bags of cat chow we'd need to feed four cats for a week if they ate so many ounces each a day. (We had to keep track of all those cats for weeks to get a realistic average!) Parent volunteers go with groups of kids for this part. When we pass the test, we can go right on to the next area and we don't have to wait around for people to catch up. Some kids zoom right through all the tests and go into algebra and geometry right away, and some need to take a class. The whole school takes math this way, so each quarter you're in class with different people, the people who need to be learning this particular part of math. We even have some math whiz types who go over to Super Senior and take a math class there. Everybody's used to that kind of thing around here. Another thing we really like is going in for math competitions. Anyone in the school can try out for the teams, so sometimes we have the do-math-in-your-head geniuses for one competition, and another one may need the ones who can build ten-story buildings out of one thousand drinking straws and a package of miniature marshmallows. Then we send a reporter out and it all gets written up for the paper.

Because Super Senior is right down the block, we have an extra-special science program here at Model Middle. A few years ago we did a poll of students, parents, and teachers about what we wanted to learn and what they wanted us to learn in science, and we all agreed that we wanted to learn about a lot of different areas in science (what my grandpa the English professor calls survey courses). Oh sure, we'd had science in elementary school and we really had learned a lot, but in middle school this needs to be more organized, more, well, serious. So we have courses in biology, botany, astronomy, chemistry, physics, marine biology, physiology, and geology. Everyone in the school has to take three of them, but we can take all of them if we want. Some of the science teachers from Super Senior come down for a period to help out, and sometimes we go up there to use the labs. Students from the high school come down to give demonstrations for our science classes, and that's actually part of their grade. That's always a lot of fun. When they enter some of the big science competitions, they always demonstrate their projects for us. The other great thing about science is that all of the teachers let us do a lot of experiments ourselves. We get background information from the book, then we have a chance to try things out. We haven't blown up the school yet, so the principal says we're OK. Having enough money is always a problem, but we try to find ways to do things like go to an observatory, or go rock collecting, or other places where real science is happening.

You have to be a good reader to be in our history class, even though we don't use an ordinary history textbook. Does that sound weird? It's because we read a lot, but in all different sorts of books – diaries, biographies, newspapers, magazines, anything that gives us the information we need. We find out tons of things about a topic and then we do projects to share what we've learned. We do individual work, or team up in pairs or groups, and we may present our projects to our class, or other classes, or maybe the whole school. Some of the kids who see our projects think we only do fun things in history and never any work, but that's not true. Research is hard work. One kid did a model of the battle of Gettysburg, with the whole battlefield on a huge board and fixed up with the stuff you use to do model railroad layouts, and then he showed how the entire battle went and ended with Abraham Lincoln dedicating the cemetery there and giving the Gettysburg Address. It was neat.

We GATE kids here do have one special, special thing that we can do. That's our Project Period. Because we don't need some of the basic skill courses that some of the kids do, the teachers decided that we could set aside two periods a week for special project time. This is when we do things that are not a regular part of the school curriculum (but they do have to be "educationally worthwhile," as the principal says.) One activity is the camera club. We each have to have our own camera and buy our own film, but we have equipment for developing and printing which was donated by a local photographer. Some of the kids have become

really good and won prizes in local contests. Another is the writers club. When that group meets, all you can hear is an hour of pencil scratching, except when they read aloud bits to each other for criticism. One girl is writing a novel. The computer gods get together in a corner of the computer lab, and we have a chamber music group that practices. There's even a bird watching bunch. If someone has a special project or interest to work on by himself, he can do that. We make a choice for a quarter, and we agree to stick with it for the whole quarter. Then we can change the next quarter and do something else if we want, or we can stay with the same project. We usually make a video tape at the end of each quarter, with each group or person telling what they have done. We share these tapes with other schools, and have "camcorder pals."

The principal (and my grandpa the English professor) think the teachers who get involved with us GATE kids are a little bit weird, and I guess maybe they are, but that's part of the whole thing. They treat us, not like adults, because of course we're not adults, but like human beings they respect. They don't expect us to know everything, but they work with what we do know and don't act like we're "only kids." They'll listen to any idea, and if they think it's dumb, they'll tell us why and give us a chance to answer objections. They're interested in both their special area and in what's going on in the world, and they level with us. But don't get the idea that they're not strict when they need to be, because they are. They say that since we're GATE students, we have an extra responsibility to contribute to society, and they don't let us be lazy or get away with anything. We can have a lot of fun with them, but we know we need to treat them with respect too, and somehow the idea of taking advantage of a teacher never even seems like fun.

It's been great showing you around our school, but I have to go now. My history group meets in five minutes. We're preparing a panel discussion on what might have happened if Paris had decided to give Athena the golden apple as "the fairest" and gotten wisdom instead of the most beautiful women in the world as his wife. I'm Athena, and it's not easy to get inside the mind of a Greek goddess. If you like, we'll loan you the video and you can see how it comes out. Don't forget to pick up a copy of the paper when you go through the office. The language class did a great editorial page on whether or not school uniforms were a good idea.

Model Middle was written using the input of students Ken Wentz, Twenty-Nine Palms; Jenny Dunn and Casey Dunn, Twain Harte; Louis Gray, Paradise; Luke Seeman, Eureka; Darla Grantham, Eureka; and Nathan Hubbard, Crescent City.

The Distant Space

The distant space
Of mysteries,
Questions,
And answers.
The stars,
How were they made?
Are there aliens like us?
Nobody knows
Out there
In the distant space.
Needles of questions
Pierce minds
Of the young
And the old.
If we know,
We are fulfilled,
Until then,
The distant space remains,
Untouched.

Kevin Smith, age 9

Planets

A vast ebony floor
Full of marbles.
Each one unique
And different.
Swirled with the
True black of the night.
It's the game of
marbles.
It's the game of the
planets.

Amy Andelson, age 9

Stars

Swirling like thick rich honey
In black infinity
These tiny diamonds
Dance
Like dandelion fluffs drifting
Away.
These miniscule glowing lights
Smile in the sky.
The glistening stars
Glide like swans
Away, away
In the night.

Crystal Y. Chuang, age 9

Space Our Home

Space is an aperture filled with gleaming stars,
A galaxy with spherical objects,
A place replete with constellations.
Space holds our planet, our country, our home.

Cody Hurdock, age 9

Student Poems
from
The Mirman School,
Los Angeles

Middle School Survey Report: Impact on Gifted Students

Executive Summary

by Mary Ruth Coleman and James J. Gallegher

The purpose of the Gifted Education Policy Studies project on gifted middle grades learners was to investigate current attitudes of educators from both the middle schools movement and gifted education. We believed that cooperation between the groups was needed in planning appropriate services for gifted middle grades students, and yet little information was available to help guide these collaborative efforts. As a first step to understanding the attitudes of educators from both groups, we designed a survey to identify areas of concern and mutual agreement on services for gifted middle grades learners.

The survey focused on six interest clusters:

(a) grouping strategies,
(b) identification issues,
(c) curriculum modifications,
(d) teacher preparation,
(e) program evaluation, and
(f) addressing the social/emotional needs of gifted students.

The first section included 23 Likert scale questions reflecting these six areas of concern, which asked participants to rate their opinions from (1)—strongly disagree to (4)—strongly agree; the option of (N)—no opinion was also available. The second section of the survey asked respondents to select their top three concerns (of the six cluster areas) and to rank their selections by priority. The third, and final, section invited respondents to provide comments or additional thoughts on the needs of gifted middle grades learners.

We sent the survey to 400 participants; 100 randomly selected from the mailing lists of four professional organizations: The Association for the Gifted (TAG); The National Association for Gifted Children (NAGC); the National Middle School Association (NMSA); and the Association for Supervision and Curriculum Development (ASCD). The return rate of 84% showed high interest in the topic and creates added confidence in the findings.

A Multivariate Analysis of Variance (MANOVA) compared the middle school and gifted education responses on the survey clusters. We split the six original clusters into 10 clusters after examination of item interrelationships. The 10 item groups were:

(a) grouping practices,
(b) social development,
(c) curriculum,
(d) program differentiation,
(e) emotional support,
(f) teacher preparation,
(g) identification issues,
(h) collaboration,
(i) teacher assignments, and
(j) program evaluations.

The MANOVA revealed significant differences between the two groups on the clusters; however, with the large sample size, which predisposes toward differences, we decided to move to an analysis of effect size, which gives a description of how different the groups really are. Effect size is determined by dividing the differences in group means by the total group standard deviation. An effect size of .8 is considered to be large, .5 is moderate, and .2 is relatively small (Cohen, 1988).

The two clusters that did elicit opposing responses were "grouping practices" and "social development."

We analyzed the second section of the survey, the ranking of most important issues, by comparing selections made by both groups. We used qualitative analysis to identify themes in the third section and we asked judges to code the comments. The results indicated that although there were differences between the two groups, most of these differences were in the intensity of agreement and not differences that indicated opposing positions. The two clusters that did elicit opposing responses were "grouping practices" and "social development."

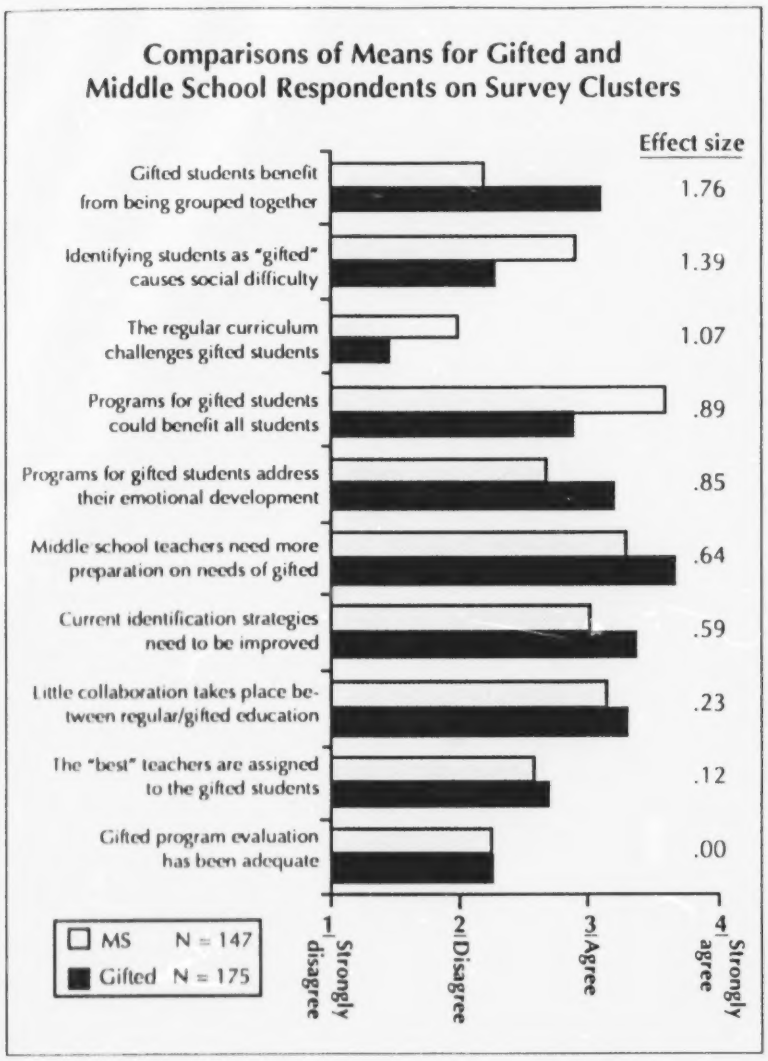

Comparisons of Means for Gifted and Middle School Respondents on Survey Clusters
Effect size
Gifted students benefit from being grouped together
1.76
Identifying students as "gifted" causes social difficulty
1.39
The regular curriculum challenges gifted students
1.07
Programs for gifted students could benefit all students
.89
Programs for gifted students address their emotional development
.85
Middle school teachers need more preparation on needs of gifted
.64
Current identification strategies need to be improved
.59
Little collaboration takes place between regular/gifted education
.23
The "best" teachers are assigned to the gifted students
.12
Gifted program evaluation has been adequate
.00
MS N = 147
Gifted N = 175
1 Strongly disagree
2 Disagree
3 Agree
4 Strongly agree

Figure 1

1. Grouping Practices

The summary statement that typified this cluster was: *Gifted students benefit from being grouped together*

This issue showed the widest discrepancy between the groups. Educators from the middle school group felt that gifted students may not benefit from ability grouping whereas educators from the gifted group felt that grouping was important to meet the needs of gifted learners. The effect size of 1.76 indicates that these are markedly different viewpoints on this issue, which clearly separated these two groups of educators.

2. Social Development

A summary statement for this cluster was: *Identifying students as gifted causes social difficulty.*

Educators from the middle school agreed with this statement. Their feelings seemed to be that the "gifted" label and accompanying special program often create social adjustment problems for the gifted students. The educators of gifted students disagreed with this statement, feeling that "giftedness" does not necessarily interfere with social development, and that the label and services provided assist gifted students with their social adjustment. An effect size of 1.39 indicated a major separation in the groups.

On the remaining clusters, the differences indicated that the groups had the same opinions on these issues but differed in how strongly they held these opinions.

3. Curriculum

These items addressed whether or not the regular middle school curriculum could meet the needs of gifted students. The summary statement typifying this cluster was: *The regular middle school curriculum is challenging for gifted students.*

Both groups felt that the standard curriculum is not challenging enough for gifted students; however the strength of this perception varied by group. Although the middle school educators disagreed with this statement, the educators of gifted students "strongly" disagreed. With an effect size of 1.07, this difference in intensify seemed important.

4. Program Differentiation

The summary statement for this cluster was: *The program designed for gifted students could benefit all students.*

The middle school educators voiced strong agreement with this sentiment, whereas the educators of gifted students expressed mild agreement, feeling that, to some extent, components of the program for gifted students would be good for others as well. The effect size of .89 does indicate that these groups differed in their intensify of agreement with the statement.

5. Emotional Support

The summary statement for this cluster was: *Current programs for gifted adequately address emotional development for gifted students.*

Both groups agreed with this statement. However, the educators of gifted students strongly agreed, feeling that programs for gifted students do, in fact address the emotional needs of the students and that sufficient social sup-

port and attention to their affective development is included in programs for gifted students. The large effect size (.85) indicates that the intensify of feelings differs for the groups.

6. Teacher Preparation

This set of items addressed whether or not teachers of middle grades students have enough preparation to meet the needs of gifted students. The summary statement was: *Teachers at the middle grades need additional staff development in the characteristics and needs of gifted students.*

Both groups agreed with this, with the teachers of gifted students strongly agreeing. The effect size of .64 indicates a moderate difference in the intensity of agreement between the groups. This area seems to be a point of mutual concern and may be a point of future collaboration as well.

7. Identification of Gifted Students

This cluster looked at two issues – the failure to recognize underachieving gifted students, and the need for student identification in order to assure appropriate services. The summary statement was: *Current identification practices need to be improved.*

There was overall agreement in this area. However, the focus was slightly different. The middle school educators felt that current practices overlook many students, whereas the educators of gifted students focused on the need for identification to assure services. The moderate effect size of .59 indicates that the groups reported fairly similar views on these issues.

8. Collaboration between Regular and Gifted Education

The summary statement was: *Little collaboration takes place between educators in regular and gifted education on curriculum development.*

This area seemed particularly important given the middle schools philosophical emphasis on interdisciplinary units and the inclusion of thinking strategies within the curriculum. Both of these areas have been extensively used in planning differential education for gifted students. The groups agree that little collaboration has taken place, and the effect size (.23) indicated that their feelings are quite similar on this issue. Both groups seem to feel that collaboration would be mutually beneficial.

9. Teacher Assignments

The summary statement was: *The "best" teachers are assigned to teach the gifted students.*

We included this statement because it is a complaint sometimes voiced; however, the group responses indicated neither agreement nor disagreement. Both groups fell in the area between agreement and disagreement, indicating that excellent teachers, as well as poor teachers, can be found in all areas of education. The effect size of .12 indicated no real difference between the groups on this item.

10. Program Evaluation

The summary statement was: *Evaluation of gifted programs has been adequate.*

Both groups disagreed with this statement, indicating that program evaluation is an area that needs attention, and there was no difference between the groups on this cluster.

Most Important Issues

On the ranking of most important issues, the groups were also similar. The top three concerns of the middle school educators were: improved curriculum, attention to grouping practices, and teacher preparation. The educators of gifted students ranked curriculum, teacher preparation, and appropriate identification as their top three. When we looked at the ratings for the second most important issue, identification practices emerged for the middle school educators and grouping was included by the gifted education respondents. These results again indicate that we need to pay further attention to appropriate grouping strategies, and that collaborative efforts need to address curriculum differentiation and teacher preparation as priority areas.

The survey results indicated some clear starting points for communication and collaboration between middle school and gifted education. Although the focus of this report has been on the needs of gifted students and the recommendations made address their needs, we understand that many of the following suggestions would be appropriate for all middle grade students. The following directions would seem to be warranted:

1. Initiating joint efforts between middle school and gifted educators to provide teacher preparation to ensure that all middle school teachers have the knowledge and skills to meet the needs of gifted middle grades students.

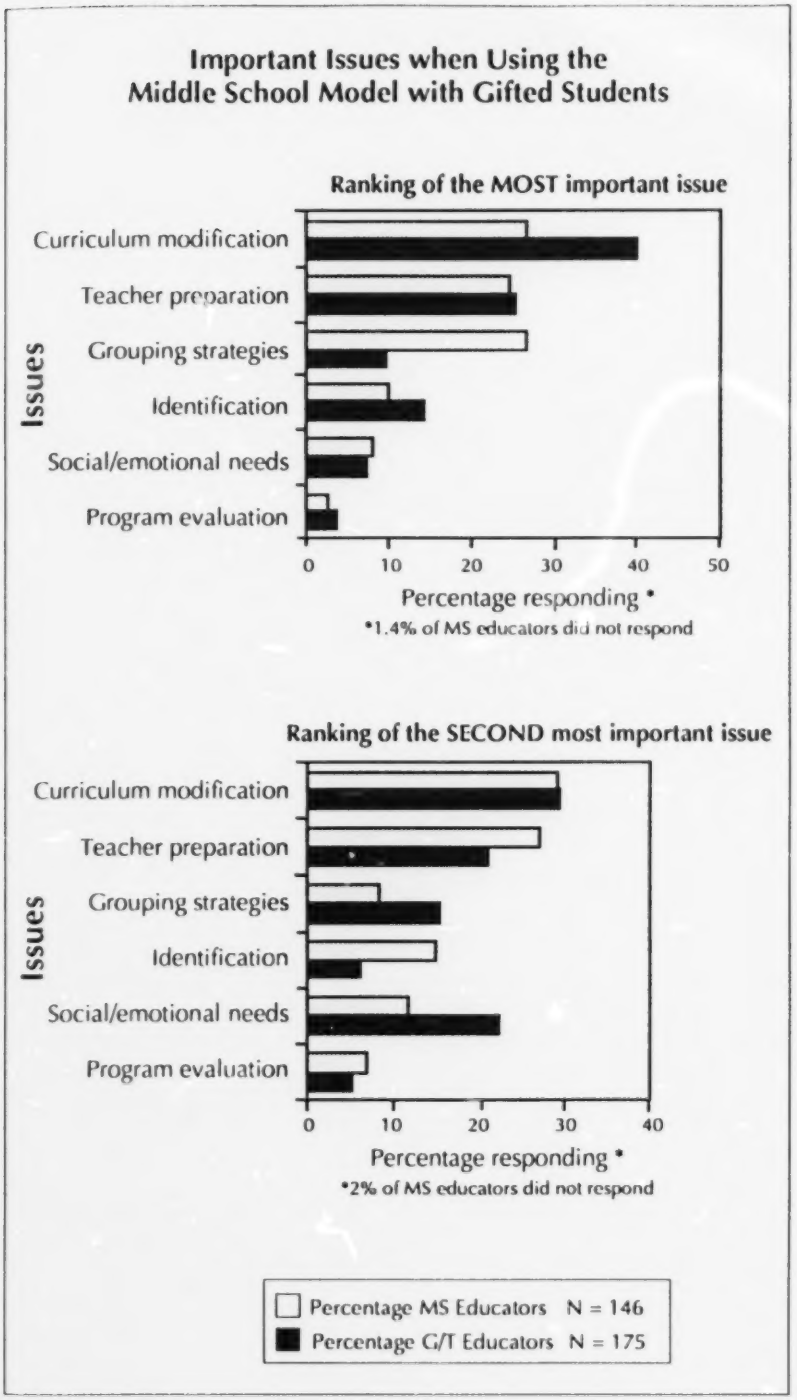


Figure 2

Permission is granted by the researchers to reprint as desired. Copies of the complete study are available from Gifted Education Policy Studies Program, 137 East Franklin Street, Chapel Hill, NC 27514; 919/962-7373.

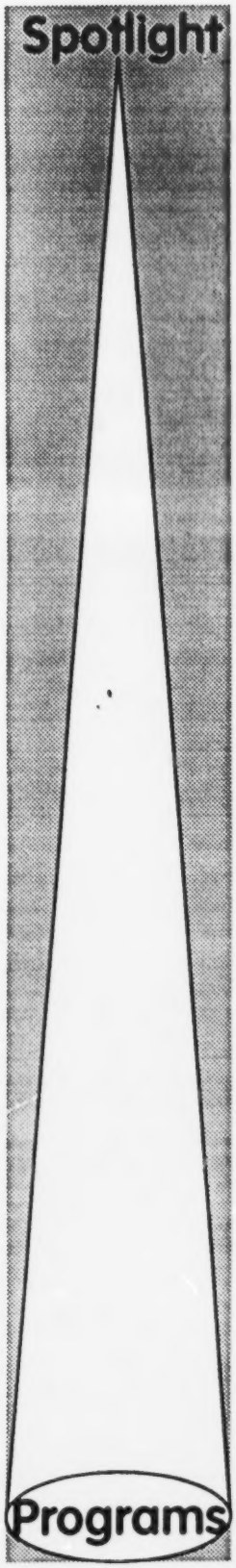
2. Collaborative interdisciplinary curriculum development, with a twofold focus:
   (a) on strategies to ensure an appropriate pace and challenging level of learning for gifted middle grades learners; and
   (b) on ways to extend some of the experiences provided through the gifted program to other students who could benefit from them (e.g., activities to enhance problem solving, enrichment field trips, opportunities for independent/interest-centered learning).
3. Creating ways, at the building level, to address the affective needs of middle grades gifted students through teaming, counseling programs, and advisee-advisor relationships designed to assist gifted youngsters with their social and emotional growth.
4. Exploring a variety of ways to group students for instructional purposes which match the needs of the students and the requirements of the curriculum to ensure challenging experiences for gifted students.
5. Designing and using program assessment strategies that can measure the full range and depth of outcomes for gifted students in order to evaluate the effectiveness of services for gifted middle grades learners.

It is reassuring to note that educators from both middle school and gifted backgrounds share many of the same concerns. We believe that if we combine the knowledge and expertise of both groups, the result will be an exciting collaboration that can benefit many students.

Reference

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum.

This research was conducted by the Gifted Education Policy Studies Program at the University of North Carolina in Chapel Hill. The views expressed in this presentation are those of the presenter(s) and are not necessarily shared by the U. S. Department of Education, Office of Educational Research and Improvement that provided funding under grant number R206A00596.)



Joseph Kerr Middle School
A Year-round School with a GATE Mission

by Sharon Freitas

Hanging on the office wall, visible in each classroom, and printed on the school's letterhead, the mission statement reads as follows: "An effective school emphasizes an atmosphere of educational excellence. Students are encouraged to be successful, to reach their potential, and to exhibit responsibility for their own academic and social behavior." This suburban, year-round school with 1800 seventh- and eighth-grade students includes a 20% identified gifted and talented population. Many of these GATE students have participated in full-time "alternative" GATE classrooms for three to four years at the elementary level and enter the middle school with advanced skills, especially in the area of math. Because of this and other special considerations, the staff at this school has developed a far-reaching and comprehensive GATE program with three outstanding components available regardless of which of the four tracks the student is enrolled in. These three areas offer a variety of activities which promote academic excellence, including the availability of algebra and geometry on campus, and the RENAISSANCE Business, Community Partnership Program.

Activities to Promote Academic Excellence

The principal for many years, Dr. Arnold Adreani stated in a recent interview that "the school goal is to serve all GATE students on all tracks by having a balance in a program that includes both an academic and enrichment focus." Being a parent of three identified MGM students who are now attending either a university or graduate school, Dr. Adreani personally knows that GATE students want to do it all. At his school, GATE students with special needs or interests are individually counseled and scheduled so that they can participate in as many activities as possible. An example would be students in a CORE program who are also eligible for Jazz Band, Concert Band, and student government. Personally designed schedules for GATE students are made so that creative ways can be utilized to allow a student to access CORE programs and all of these specialized electives. Add to that the availability of several academic competitions such as Silver K, Academic Olympics, Odyssey of the Mind, National Knowledge Master, Science Olympiad, etc....and you have very busy students. Many times students choose to "rainbow" across tracks, attend an optional seventh period after school, or be on campus during their off-track, vacation time. One very supportive arrangement for a student who cannot fit it all in is the availability of GATE physical education for 7th period after school. This allows a student to participate in six academic classes including either advanced music or student government. Both GATE and School Improvement Program funds are used to provide the appropriate teacher for the 7th-period class.

Accelerated Math Program

During the last eight years, the number of students ready for Algebra at 7th grade increased due to two trends. One was the acceleration made available at the elementary level both within the GATE 6th-grade classes at four sites and occasionally within a regular 6th-grade classroom due to a student's specific academic aptitude for math. The second is the fact that many students at the elementary level participate in the Academic Talent Search Program at the nearby California State University, Sacramento campus. Students who complete Algebra or Pre-Algebra in six weeks during the summer need higher levels of math at both 7th and 8th grades. Joseph Kerr Middle School first made arrangements for their math students to be concurrently enrolled at Elk Grove High School, about one-half mile away. When the group of students commuting via bicycle down and back each morning began to resemble a full fledged caravan, the math department decided to offer both algebra and geometry to all students who demonstrated readiness. This past year, two sections of geometry on two different tracks were offered, with an additional option of enrolling in a "cable" geometry class being broadcast from the television studio of the new high school in the district. As the district is always concerned about making equal programs available at each school, the use of cable instruction is growing. Again, the use of GATE funds as well as a special technology grant has made this a reality.

RENAISSANCE Program

Successful student support involves the sponsorship of the RENAISSANCE Business, Community Partnership Program. Incentives, provided both at school and within the com-

munity, are given to achieving students. Periodically, students are given prizes, as well as specially colored student body cards, identifying stickers, etc. which can be used for certain student privileges, discounts, and special off-campus activities. Full pages of the local newspaper are devoted to each of the award assemblies with names of all the achieving students listed.

Academic Offerings

Mary Orrick, GATE site coordinator, states, "Many changes have taken place over the years, and we are continuing to examine and adapt our Academic GATE program each year in an attempt to best meet students' needs." For several years, all 7th-grade GATE students have been offered a GATE language arts for a two-period block. At the 8th-grade level, a new "Challenges" elective has replaced the Honors Social Studies of years past. This elective has four units, Kerr's Kourt (mock trials and the judicial system), Survey of Issues (students do surveys and present real data to the school staff), Art in Action and a Technology unit involving robots, computers and video production.

"At times the task of meeting students' needs is awesome, as the school serves over 300 GATE students who have been identified for very diverse reasons on four different tracks," Mary continues. Identification can be in one or more areas, such as high achievement, specific academic ability, intellectual ability, or multi-dimensional talents. The ethnic make-up of the GATE program reflects that of the school, and there is an increasing number of referrals from recent immigrants into our area. "Our students are encouraged to stretch themselves in curricular areas outside our GATE classes. For instance, 19 of our GATE students also participate in the student government, 15 are peer leaders, and 7 are on the yearbook staff. A large number play an instrument in band or sing in choir."

The staff members who have been designated as GATE teachers include four 7th-grade Language Arts instructors and five 8th-grade teachers who share the "Challenges" elective. As the GATE staff, they search out opportunities to perfect their skills by attending inservices and conferences, such as the CAG statewide conference. The teachers are enthusiastic about their subject areas and are skilled and flexible in dealing with GATE students. They state, "We are excited about our GATE program at Joseph Kerr Middle School and what the future holds for our students."

GATE Goal

It is the intent of the GATE program at Joseph Kerr Middle School to challenge the students in independent study, research, and higher level thinking skills so as to nurture and celebrate each student's individual interests and talents. Additionally, development of students' sensitivity and responsibility to others is fostered.

GATE objectives include activities to: build students' deductive and inductive thinking skills, help students to think critically on a daily basis, build self-esteem and develop leadership potential, increase opportunities to learn technology, apply technology as it relates to current trends in the workplace, and look at careers and prepare for them.

Mary Orrick is an 8th grade Social Science teacher, who is released one period a day with GATE funds to provide leadership and support to the staff. Nine additional teachers are involved with the program. At the 7th-grade are Rose Wooldridge, Joanne Fleetwood, Mark Bandy, and Sue McIntosh. The teachers at the 8th-grade are Pat Nelson, Kathi Goldsberry, Judy Clemons, Dave Hieronimous, and Dan Newton.

Sharon Freitas is GATE Coordinator of the Elk Grove Unified School District. She can be reached at 916/686-7759.

Tanka Poems

from Twin Peaks Middle School,
Poway, California

Splish, Splash

Splish, splash,
Rain gently slipping away from
the clouds,
Dancing crystals, falling, falling,
To the parched desert
Bringing life and hope.

Ellen Wei

Fire

The fire burns through the forest
Letting nothing stand in its way
Until dusk, when the fire
dissolves
Into silent embers.

Cindy Freund

Pixie Dust

Tiny fairies with silver wings
Dancing in the cloudless sky.
Their muted glow
Shining like distant stars
In the night.

Lindsey Dillon

Grains of Sand

Waves beat against the shore,
Each brings back a grain of sand.
Some grains of sand are happy
thoughts,
But, most are
The sorrows of the world.

Megan Moriarty

Differentiating the Curriculum at Twin Peaks Middle School

by Lynn Astengo

When asked last May to be the GATE Coordinator of our middle school, I accepted with reluctance. At that time, our District was presented with a controversial issue—the grouping of GATE students in homogeneous and heterogeneous classes. The real issue was curriculum that was differentiated and appropriate to gifted students. Having taught gifted students for over twelve years and being a parent of a two gifted students, one identified and one not, I took these issues very seriously. I was sensitive to the issues at hand, as they involved me not only professionally, but personally.

Encouraging our qualified teachers to improve their differentiation is my greatest challenge. In the summer of 1992, the GATE Coordinators of our District met with a parent group, our Assistant Superintendent and Elinor Ruth Smith, a consultant in gifted and talented education. Our purpose was to provide our wonderful teachers with a series of seminars that could further their expertise in teaching the gifted. The teaching strategies presented focused on differentiated curricula presented in both homogeneous and heterogeneous classes.

Our teachers use a content-process-product learning environment with a thematic approach based on Bloom's Taxonomy. These strategies not only serve a homogeneous class, but allow teaching heterogeneous classes without the verbal stigma, "You are GATE and will do this project and/or you are not GATE and will do the less challenging activity." Our goal is to meet the needs of all students while providing a differentiated curriculum for gifted students.

Beginning at the knowledge level, a teacher is able to provide an introduction to all students in a particular lesson. The comprehension step is noted by checking for understanding. Our teachers have become well versed in this step through their attendance at district-sponsored "Clinical Teaching" seminars. The application step, provided for all students, may be expanded with the faster learner. By being aware of various thinking levels and learning styles, the differentiation here is subtle. We are familiar with Gardner's Multiple Theories of Intelligence and realize the students in our classroom will respond to the next three steps of Bloom's Taxonomy differently. The teacher's challenge is to encourage higher order thinking skills by using the content-process-product learning environment.

By appropriate questionning, creating "what if" situations and suggesting alternate outcomes, the teacher can reach the analytical and synthesis and evaluation process. Research activities provide these thinking levels and offer the student the challenge to reach the application level. Nancy Polette's *Research Without Copying* encourages students to use their higher order thinking skills. She believes students can "...locate, analyze, evaluate, and synthesize information..." She states one of her goals is "...to encourage students to think critically about what they read and hear...and to allow students to use information in a variety of ways." We should make that our highest goal.

The differentiation may be unnoticed. In my homogeneous GATE class, I have had students' parents respond to evaluation letters by stating that their child is challenged, loves school and feels motivated. I have also had parents ask, "When is GATE going to start?" In response to this question I would say that it starts with the challenges that we provide daily to each uniquely different student. Our job as teachers is to identify that unique "differentness" and teach to it.

Lynn Astengo is the GATE Coordinator at Twin Peaks Middle School in the Poway Unified School District.

Spotlight

Profiles

A Consistent Commitment

A Conversation with Bruce DeVries

From Coalinga, where he grew up, to Ukiah where he now guides a school from the principal's office, Bruce DeVries has strong roots in California's Central Valley and an equally strong commitment to gifted education. This began in 1963 when he was asked to teach a class of highly gifted sixth graders in the Cupertino School District. The next fall the district asked him to take over and develop the gifted program.

That first year he "researched everything on gifted education" and visited programs all over California and in other parts of the country. He called it a situation "where you learn on the job" since at that time there were few gifted programs in place to use as models. He began with a class of fifty students and built the program to one which served more than 3,500 gifted children in grades K-8. Included was a magnet program for highly gifted underachievers, a development of which he is justifiably proud. He puts flexibility and innovative thinking at the top of the list of important characteristics for educators who work with gifted students. He flies his own airplane around California, which sounds pretty flexible and innovative too.

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The Future of Gifted Education

One of the most important issues facing gifted education today is apathy. So many of our efforts today are being made on behalf of the at-risk child. We need to be sure that we do not forget the gifted students and look at the potential for contribution to society that they have.

Gifted education needs stronger leadership in school districts from superintendents and boards of education, and we need to make certain that gifted programs have coordinators with a real interest in gifted education. In these days of financial stringency, this won't be easy, but it will pay big dividends in our future.

We need equally to make sure that these programs are mandated at the state level so that every child has the same opportunity to participate, no matter if he lives in a large urban center or a rural area.

Special training for teachers is very important to the success of a really outstanding gifted program. These students need to be challenged as individuals, and a trained and sensitive teacher can raise self-esteem and improve the students' ability to avoid regarding themselves as "different."

It's also important to use a wide variety of assessment tools to identify gifted students. We should stress different types of "giftedness," such as scientific or mathematical ability, verbal ability, and literary, musical, or artistic talent.

❦

Thirty years in the field of gifted education have not slowed Bruce DeVries down nor dampened his enthusiasm. He continues to keep up with the latest thinking in the field and attends conferences all over the United States. He is frequently a presenter of workshops and a keynote speaker, and he is a tireless advocate for the gifted to see that "they get the best ... what they deserve."

He has served as president of CAG and continues his active participation in many facets of the organization. As a principal he has used the techniques he learned from gifted education and applied them to the successful operation of a school. He had the first Distinguished School in Mendocino County. He attributes this achievement to his experiences in gifted education.

When his colleagues in CAG speak about Bruce, they talk about his consistent commitment to gifted education, a real gift to the gifted students of California.

Middle School Demonstration Sites

by Ron Fontaine and Bill Jones

Just as *Caught in the Middle* provided the leadership and impetus for the instructional innovation seen in the current restructuring reforms in California's schools, so too did the 1992 CAG/CDE paper dealing with differentiated curriculum encourage middle schools to move quickly to demonstrate these new concepts. A number of schools statewide answered the CAG invitation to become demonstration sites, to take the curricular guidelines, improve their offerings for GATE students, and to invite others to see what they had accomplished. These middle schools have identified two to four dates each year when visitors are invited to observe their interpretations/demonstrations of what is meant by the depth, complexity, novelty and pacing concepts within differentiated curricula.

Visitors are offered a schedule which allows not just classroom visitations, but meetings with project teachers and their coordinators or principals. Time is arranged to talk with students and parents as well. Teachers in the demonstration teams have agreed also to provide a video tape and written units of study which will illustrate the specific programs in each demonstration effort. These products will be available through the CAG office in Fall 1993.

Four middle school ventures in differentiated curriculum clearly reveal the wide breadth of possibilities for innovation in developing curriculum for the gifted student. First there is Luther Burbank Junior High in Burbank. Facilitated by their dynamic principal Donna Coffey, five teachers deal with a self-contained sixth grade class and interdisciplinary social studies/English classes at the seventh and eighth grade levels. The teachers have worked with CAG consultants to utilize the broad theme of *change* in their investigations of the Renaissance and the American Civil War. Visitors might observe students assuming the perspectives of Thomas Jefferson, Franklin D. Roosevelt or Jesse Jackson in explaining the Civil War.

GATE coordinator Judy Witt has facilitated an eighth grade interdisciplinary portfolio demonstration with a team of three English teachers at Olive Peirce Middle School in the Ramona Unified School District. The classes involved are homogeneous and cluster groupings. The portfolio project includes science, math and social studies selections which students have chosen to represent their learning for the quarter, as well as English examples. Visitors to OPMS will be able to see the students working with partners to defend their selections and help assess the learning that has occurred. A video of portfolio day will be available for viewing and conference time with GATE teachers, parents, and students will be provided.

A third demonstration is offered by Ventura Unified School District where gifted students from all four Ventura middle schools (Anacapa, Balboa, Cabrillo and DeAnza) are provided an incremental program which allows each student to examine and study leadership concepts in classroom units where the elements of leadership are analyzed. Students are then allowed to try out these concepts by participating in community service projects in Ventura. All activities finally culminate in a special leadership conference at nearby Westmont College. Guided by GATE coordinator Margaret Gosfield, teachers from the four Ventura middle schools are able to provide demonstrations of differentiated curriculum in their hands-on study of leadership.

Finally, Martin Luther King, Jr. Junior High School in Sacramento's Grant Joint Union High School District offers a seventh-eighth grade interdisciplinary team which teaches English/social studies/math and science in a core approach to differentiated curriculum. The team uses the broad themes of differentiated curriculum in units of study dealing with the Western Movement and Elizabethan Times. The program is facilitated by coordinator Ken Machado.

The dates for visitations at these programs are listed on page 3.

Ron Fontaine is Director of Special Projects and Bill Jones is a principal in the Kern High School District. They may be reached at 805/631-3109.

TECHNET

Note from the TechNet Editor
Terrie Gray

As you read through this and subsequent TechNet articles, please evaluate the featured unit's appropriateness for gifted students by asking these questions:

- *Does the study allow for elaborate, complex and in-depth investigation of information?*
- *Does it cross or integrate subject areas?*
- *Does it offer opportunities to reconceptualize existing knowledge or create new knowledge?*
- *Does it support self-initiated and self-directed learning?*
- *Does it promote understanding of self and community?*
- *Does it encourage creativity?*

This list of questions is adapted from writings of A. H. Passow (as quoted by Sandra Kaplan, p. 127, in Critical Issues in Gifted Education, Defensible Programs for the Gifted, Vol. 1) *I hope they can help you identify and formulate appropriately differentiated curricula.*

Don Polen, a mentor teacher in Chico Unified School District, has been a technology pioneer. Not only has he been in the forefront, along with his colleagues and administrators, in transforming Chico Jr. High School into an model of effective and appropriate use of classroom computers, he has served as an example to his peers by introducing electronic technology into the science curriculum. This month's TechNet column features his new Life Science Class.

Chico Junior High is becoming more multicultural each year. In an effort to respond to the demands of the students' varying cultural backgrounds, as well as their varying ability levels, Mr. Polen decided to free the Life Science class content from its sequential text-base to make it more aligned with the new state science frameworks, as well as to make it problem-based, and flexible. To help students see themselves, and all people, as a part of interdependent and interactive networks of organisms, Mr. Polen structures class activities to enable students to discover how each group of plants and animals fits into the larger context of its ecosystem, rather than having them study each animal class separately.

Students begin by participating in *"Decisions, Decisions: The Environment,"* a simulation by Tom Snyder. This commercial product presents to the students common environmental problems about which they can make choices from among several options with varied consequences. Each choice yields a specific effect and an additional problem with its attendant possible courses of action. (For example, the townspeople must choose either to ignore possible pollution in a swimming area, or to treat it chemically or biologically.) *"Decisions, Decisions: The Environment,"* introduces basic environmental awareness issues and assists the students to view problems from a variety of viewpoints.

"Decisions, Decisions" is intended to be used in a one-computer classroom and is available in both Macintosh and DOS formats. The activity is conducted in small groups, or as an entire class. The greatest problem with the program is that the simplicity of the game does not match the difficulty of the reading material. One strategy for dealing with this discrepancy is to assign strong readers in a heterogeneous classroom "Expert" roles so they can present difficult material to their teammates.

Following this introductory activity, several local environmental issues are investigated in greater depth, including:

- land utilization (green belts, housing developments)
- waste disposal
- endangered species
- water pollution
- air pollution.

The class decides on a project for the remainder of the unit. The wetlands is used as a typical ecosystem to study the biotic and abiotic interaction.

In Mr. Polen's class, topics are studied through standard text work, through library research, and through observations at community sites. Additional resources which prove invaluable include the information data base from SimEarth, *Earth Quest*, *Earth Quest Ecology*, and Optical Data's *Science Sleuth* videodisk fea-

turing an investigative approach to environmental issues.

After extensive class research, Mr. Polen's next step is choosing a real problem to investigate. Local problems have recently included several in the *Man vs. Nature* domain:

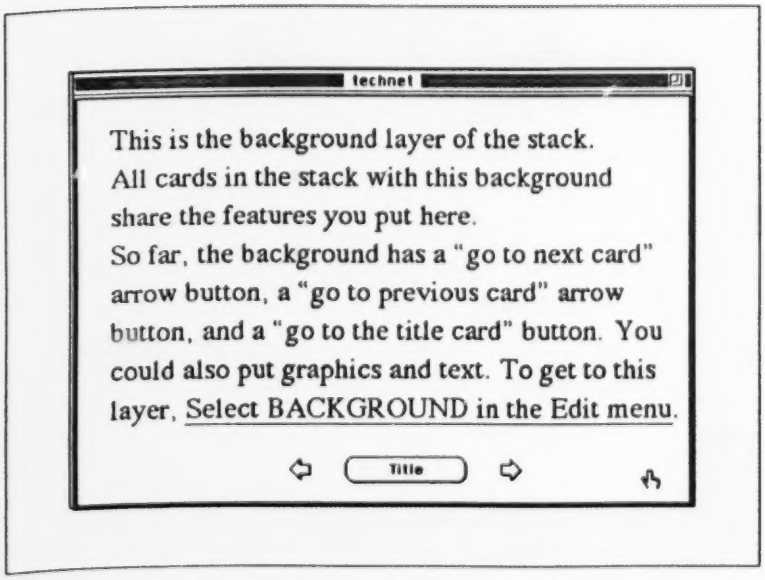
- A developer wants a permit to build in a Meadowfoam habitat
- The salmon population in Little Chico Creek is declining
- Paradise—a town of 40,000—voted against putting in a sewer system even though there is coliform bacteria contamination in surface water
- The county landfill is almost full; a new site is needed.

Once a team of students has selected a problem, they research which species besides people are affected by the conflict. They analyze the information and take a position. Their research and conclusions are summarized for possible presentation in the form of an original HyperCard stack to a public decision-making body such as the City Council or the Park Commission. This presentation also becomes part of Open House and Science Fair demonstrations.

The following is a summary of a simplified HyperCard procedure developed by Mr. Polen, and used in the context of this Life Science class. A classroom teacher can use this model in at least three ways: 1) to create templates for the students to fill in; 2) to use it as a method for introducing students to creating their own HyperCard stacks; and 3) to organize material for whole-group instruction.

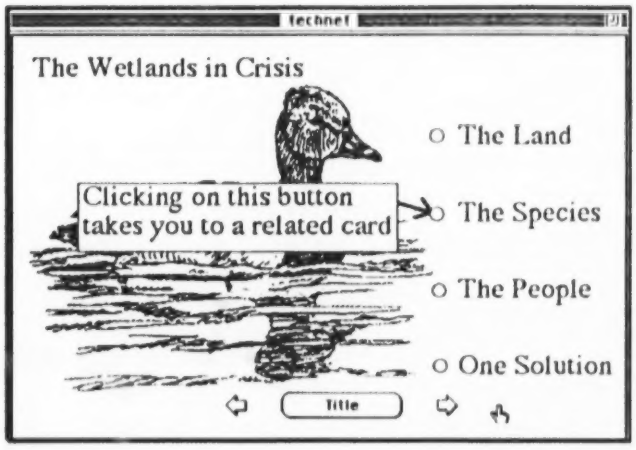
Simplified HyperCard Procedure

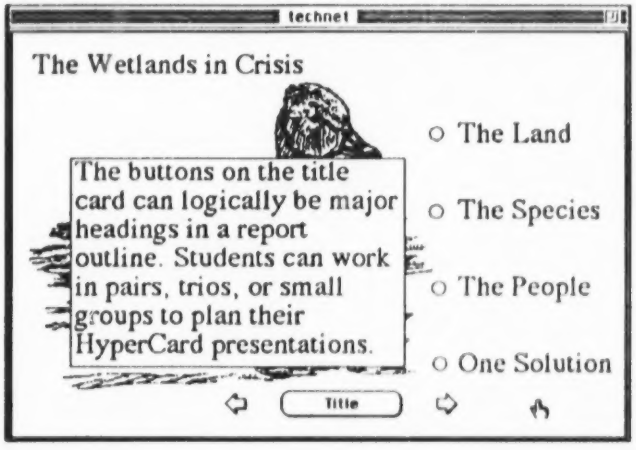
1. **Create a New Stack.**
   a. Open the HyperCard program (Make sure UserLevel is set to SCRIPTING. Check the card Before the Home Card. OR Click on GO menu, drag down to MESSAGE, and type in the message box—Set UserLevel to 5—press RETURN.)
   b. Click on the FILE menu, drag down to NEW STACK, and release
   Give the stack your name. Make sure the box for *Copy Current Background* is EMPTY.
   Click NEW.

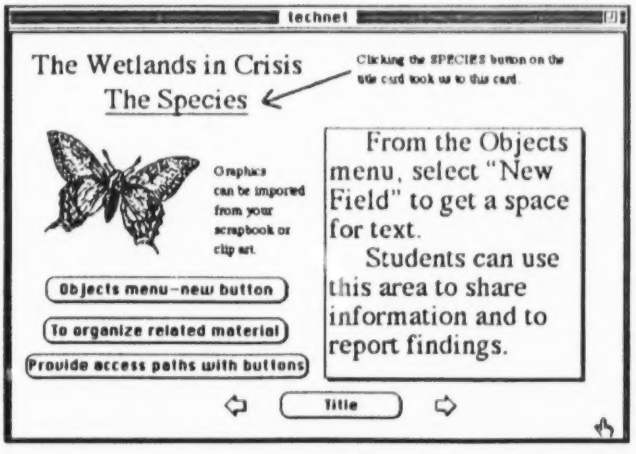

technet
This is the background layer of the stack.
All cards in the stack with this background share the features you put here.
So far, the background has a "go to next card" arrow button, a "go to previous card" arrow button, and a "go to the title card" button. You could also put graphics and text. To get to this layer, Select BACKGROUND in the Edit menu.
Title

2. **Put a border and title in the BACKGROUND.**
   a. Click on TOOLS menu. Drag all the way through the rectangular array of tools to move the tool box onto the screen where it will stay open all the time.
   b. Click on the EDIT menu. Drag down to BACKGROUND and release.
   c. Double-click the LINE tool to select line width.
   d. Click the RECTANGLE tool.
   e. Drag from the upper left to lower right corner of the screen.
   f. Double-click the PAINT TEXT tool to choose desired font. Click OK. Type the stack/report title anywhere you want it on the card.
   g. Select the BROWSE tool (the hand).

3. **Put navigation buttons (arrows forward and back) on the background.**
   a. Open OBJECT menu: Select NEW BUTTON.
   b. Double-click on the new button that appears on the screen.
   c. Click ICON and choose an appropriate picture; click OK.
   d. Double-click on the new button to see the dialog box again.
   e. Click TRANSPARENT. De-select SHOW NAME. Click SCRIPT. In this area, type—go next card—(no quotations or hyphens) where the cursor is blinking. Press ENTER on your keyboard. For the other




technet
The Wetlands in Crisis
The buttons on the title card can logically be major headings in a report outline. Students can work in pairs, trios, or small groups to plan their HyperCard presentations.
The Land
The Species
The People
One Solution
Title


technet
The Wetlands in Crisis
The Species
Clicking the SPECIES button on the title card took us to this card.
Graphics can be imported from your scrapbook or clip art.
From the Objects menu, select "New Field" to get a space for text.
Students can use this area to share information and to report findings.
Objects menu–new button
To organize related material
Provide access paths with buttons
Title

directional arrow, type—go previous card—and press ENTER.

f. Resize button by clicking on a corner of it and dragging it to a shape you want. Click in the middle (With the BUTTON tool selected) to move it where you want.
g. Select BROWSE tool.
h. Open EDIT menu; select BACKGROUND to return to card layer.

4. **Create a Title card.**
   a. Determine how many subject areas you want to present. Use PAINT TEXT to type the subject headings on the title card. Create new, transparent buttons and place one over each subject heading.
   b. Add graphics as desired.

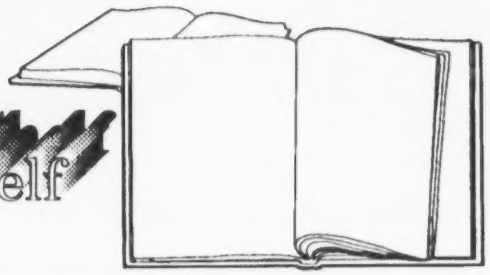
5. **Add new cards.**
   a. Open EDIT menu; select NEW CARD. Repeat for each new card needed.
   b. With the PAINT TEXT tool, type one of the subject headings under the stack title.

6. **LINK these new cards to the title card in this manner:**
   a. Go to the title card using the arrow buttons.
   b. Select the BUTTON tool. Double-click on one of the subject heading buttons. In the dialog box, click on LINK TO. Use the keyboard arrows to get to the desired card, then click on THIS CARD in the little dialog window.
   c. Select the BROWSE tool, and test the button.

7. **Add a field (used to enter text on a card)**
   a. Open the OBJECT menu; select NEW FIELD.
   b. Double-click on the field that appears on the card.
   c. Select the field style (I recommend shadow or, for longer passages, scrolling)
   d. Double-click on the new field again. Click on FONT to choose desired text style; click OK.
   e. Resize and position the field on the card.
   f. Select BROWSE tool.
   g. Type text into field.

Please note that HyperCard automatically saves all changes. If you are using this new stack as a template, open the FILE menu and select MAKE A COPY OF to create student copies.

Happy creating!!!



from the Book Shelf

Picture Thoughts: Critical Thinking Through Visual Arts

by Dorothy G. Hamilton
Hamilton Associates, Starry Night Dist.
26 Appletree Lane, Latham NY 12110; 800/777-0498

Picture Thoughts is an aptly named set of resource materials which uses art prints as a springboard to an exploration of ideas. It is a program for teachers who want lively discussions to develop in their GATE classes. It encourages the students to refine, clarify, defend and evaluate their thinking.

Picture Thoughts was developed by a classroom teacher who perfected it while working with her own elementary students. The set comes with twelve 22" by 28" wonderfully reproduced art prints mounted on heavy cardboard. A wide variety of works and themes include "Bareback Riders" by W.H. Brown, "The Harvesters" by Pieter Bruegel, "American Express Train" by Currier and Ives, and "Iris" by Vincent van Gogh.

What sets these materials apart from other collections of art prints are the teacher's guidebooks, which contain a wide range of suggestions for making a choice, stimulating interest, guiding thoughts, connecting content with current curriculum, and producing new thought. Novel ways to interest the student in examining the prints are an especially strong feature.

Also included are a great variety of possible applications in many areas of study, such as science, music, literature, social science, history, economics and reading for each of the twelve prints. The primary value lies in the fact that students are constantly being lead to develop their own critical and creative thinking. As a result, artistic creations become part of every day life, and students have a deeper understanding of how an artist relates his or her work to the world the artist knows and feels.

This is a study of important art work, and is presented in a way that really engages students. They are encouraged to think as they are working through their own evaluations, and they develop an interest in art and artists as well. There is much to recommend in the program. It presents an exciting and effective approach that works especially well with gifted children.

Reviewed by Jean DiGuilio, GATE Teacher, Ventura USD.

Wind

Wind that sweeps around the world and above the mountain tops.
Are you the same wind that makes my hair blow?
Wind that blows the owl's feathers and blows the dust away.
Are you the same wind that smashes and trashes everything in your way?
Why do you hurt people when you are on your rage as a tornado?
I feel cold when you blow on my tan face.
Why do you threaten other people's lives when you are so nice to me?

Austin Tarango Age 9
Tierrasanta Elementary School
San Diego, CA

Curriculum Integration at The Mirman School

by Richard Boolootian

Teachers throughout the country are acknowledging the importance of a multidisciplinary curriculum. Implementing such a curriculum helps students acquire concepts and skills of various, targeted disciplines more effectively. This approach requires teachers to recognize connections within their curricula and plan courses or units that allow students to make connections among the disciplines. These connections must be relevant to their daily experiences.

Since natural relationships exist between required subject areas, interdisciplinary unit ideas can be developed from current curricula. Such effective unit design requires common planning time among teachers, flexible scheduling, and early assessment of the yearly curriculum. Teachers find that deliberate planning which integrates two or more disciplines reinforces concepts and skills. Students have come to realize that integrating knowledge is basic to education.

At The Mirman School, integration of subject areas in science has been implemented. Although it may seem overwhelming, incorporating English, mathematics, history, social studies, geography, and art into the science curricula is quite possible. Recently published science texts for elementary, middle and high school students present a multidisciplinary approach. Reading, writing, analysis and math are key skills which are woven into all science activities.

Learning is accelerated as students transfer ideas and skills from one subject to another. An interdisciplinary approach bridges other academic areas to science. The Mirman School science program is structured to provide a superior level of scientific knowledge to students. The curriculum is not designed to produce scientists but rather to enable the students to function effectively in a technological society.

In the Upper School, the science courses include: Integrative Science, Earth Science, Biology, and Chemistry/Physics for first, second, third, and fourth year students, respectively. Integrative Science helps students develop an understanding of how science relates to everyday life. Earth Science presents a study of earth, its matter, features, processes, and place in the universe. This course provides a balance of study among physical and historical geology, meteorology, oceanography, and astronomy. Academic disciplines such as social studies, art, music, health, math and engineering are successfully integrated into series of activities performed in these first two science courses.

An activity that is very popular with our students is the preparation of molds and casts of selected fossils and specimens. In our biology and social study courses, students study hominid evolution. Students prepare molds of ancient hominid skulls with simple, inexpensive techniques. Plaster casts are then made using the molds. Prior to painting the casts, students learn some aspects of color theory, perception of color, the mixing of colors, and color application to the plaster casts. The resulting skulls match, in quality, commercially purchased specimen. Other fossil specimens are even more exciting.

Biology, the study of life science, is taught with a modular approach. As modules, the units can be presented in any sequence. This allows the teacher to relate current social science topics to the immediate course of study. For example, in previous years, students tied their model on ecological relationships to the Big Green Initiative, Prop. 128. In another example, students were provided a random table of body weights of male and female grizzly and black bears. Students organized and interpreted the data. They determined which bear on average is the heaviest. They also noted differences between the body weight of male and female bears.

Chemistry and Physics are taught in two different semesters. These courses encourage students to develop, practice, and apply a variety of science skills learned in class. These skills enable the students to observe, classify, communicate, measure, predict, infer, hypothesize, experiment, collect and analyze data, draw conclusions and make generalizations.

In all of these courses, students are taught not only scientific facts, but also the skills required to obtain such knowledge. For example,

the factual style of writing in science textbooks is different from the narrative style of most other books. Reading science requires special skills. Students must adjust to the amount of factual information presented. They must learn to read critically and sense relationships among ideas, as well as build on previous knowledge. Students must master a new, technical vocabulary. They must also learn to interpret information provided in tables, graphs, and diagrams. Thus, activities are designed to develop and enhance special skills such as comprehension, vocabulary, analytical and study skills.

The curriculum stresses the literal and interpretive as well as the critical and creative level of comprehension. Students learn the meaning of the material in question. But, more importantly, they learn to formulate original ideas. The development of students' vocabularies also contributes to their comprehension of science concepts. Students must be able to use the language of science in speaking and writing in order to communicate effectively. In the vocabulary activities, students learn about the structure and function of words. For example, when students survey the animal and plant kingdoms, learning definitions of words (phyla, class, order) is a formidable task. Yet through word structure, meaning, and usage, students are quick to effectively communicate both orally and in writing. They develop an understanding of the relationships among words.

To analyze data accurately, students learn to logically evaluate a problem to determine the known and unknown variables. The activities require the students to measure, develop and interpret graphs, and manipulate data using mathematical relationships. For example, data dealing with air quality found in The Weather section of the Los Angeles Times can be plotted, graphed, or analyzed through pie charts. The analytical activities require integrated use of scientific, verbal and math skills. They are designed to encourage students to use symbolic language and thought processes.

Study skills are also necessary in order for students to learn and master assignments. The students are taught to accurately read and follow directions. They learn how to gather information from various sources. These skills are important in directing their own study efforts. Thus, self-directed study, such as reports, group presentations, science fair projects, and laboratory investigations are commonly assigned in the courses.

Science provides a progressively greater understanding of the natural world. It is closely related to technology, a means by which society develops and advances. Technology uses accumulated human knowledge from science and other fields. Teaching with a science, technology and society approach is interdisciplinary, with strong connections to history and social science, mathematics, literature, and the arts. Science can provide an outlet for creativity, aesthetics, and enjoyment which appeals to each student. Such interests should be nurtured as part of the comprehensive science curriculum.

Richard Boolootian is Science Department Chair at The Mirman School in Los Angeles.

Student Poems from The Mirman School, Los Angeles

The Unknown

The universe
Is small
Compared
To the void
Beyond,
The endless
Darkness,
The terrible
Abyss,
The ebony
Cloud,
Beyond.

Brian Kendig, age 9

Space

The planets are gems
Scattered through the galaxy.
Solar flares
Gargantuan balls
Of churning gasses
Hurling themselves through
The atmosphere.
A mystery for the universe to unwind
Bit by bit
Bit
by
bit.

Kristen Bruhn, age 9

The Fight

The ebony night stares at the moon
Like a cat stalking its prey,
Its eyes dancing with cunning.
But the moon resists this dreadful
force.
The moon will never give in.
It wishes to keep the darkness
illuminated.
But the murky night keeps on trying
To dim the light,
So it can overrule.

Lauren Weinberg, age 9

Thomas:
Continued from page 1

youthful charges? What is the cause of this middle school madness?

Blame the Students

Some middle school teachers seem to place the blame on the students. Because of rapid physical and emotional changes experienced in adolescence, there is little reason to expect these students will focus their attention on learning. Their glands are beginning to develop and the onset of puberty is near. This is the time for them to "smell the flowers" and discover who they are. Some experts believe young people at this age should enjoy the last of their childhood and not be pressured by demanding school work.

Studies in the late seventies gave further justification for the non-academic nature of the middle school. Neurological studies showed that our brains develop (by growing more brain cells) from birth through adolescence. However, the growth is not an even process. Each brain grows in spurts of activity followed by periods of rest. A chart of these growth spurts and fallow periods provides some insight to why the middle school years are often "written off" for any serious academic study.

Brain Growth Model
(from Chall and Minsky '78)

Spurts of Growth
- 3-10 Months
- 2-4 years
- 6-8 years
- 10-12 (or 13) (earlier for girls)
- 14-16 (or 17) (earlier for boys)

Periods of no growth (fallow)
- 4-6 years (Kindergarten)
- 8-10 years
- 12-14 years (Middle School)

Periods of zero brain growth occur during the school years of kindergarten (ages 4-6 years) and the middle school (ages 12-14 years). Curriculum experts generally agree that during these periods, children should be provided with "developmentally appropriate" learning experiences. But to some that means no "schooling." They seem to forget that after the adolescent years, the mature brain does not add more cells, but learning continues to occur.

Gifted children experience glandular awakenings and brain growth spurts that other students experience. But not all children respond with the same intensity or the same disorientation at the same age. The designers of the modern middle school assume that each individual will have all the characteristics of the group. They overlook the diversity of individual differences and needs that these students represent.

Blame the Curriculum

The middle school curriculum also mitigates against the gifted and talented child. What is taught in the middle school grades depends on what has been previously learned. And the middle school serves as a transition between elementary school play and high school work.

Curriculum at the elementary school level is based on a spiral approach. When a content area is introduced at one grade level, student mastery is not required. The curriculum planners and textbook writers assure that each major topic will be revisited in an enriched form at later grade levels. If elementary teachers attend to the individual differences of their pupils, the students who demonstrate quick mastery will be encouraged to go beyond the "grade level" content. However, when topics are revisited in later years, especially during middle school, the gifted students in regular classrooms may indeed have "already done that."

Too often the middle school curriculum is a tedious review for gifted and talented students. Researchers have demonstrated that students at the beginning of the school year generally know a third to a half of the textbook content to be taught that year. Many gifted and talented children already have mastered what they will be asked to study during the next nine months of school. While they can easily demonstrate their mastery of this content, the school system requires them to adhere to the slow pace of the whole class, which often results in a repressive learning environment.

Blame the Learning Environment

Gangs, drugs and threats of physical violence have made some middle schools hazardous to all students. But recent trends in teaching create a learning environment that is hostile for gifted and talented students in an otherwise peaceful middle school. One major trend in education is the imposition of cooperative learning approaches for heterogeneous groups composed of students with the widest range of abilities and interests. Teachers are told that through these approaches, all students will show maximum achievement while developing de-

sirable social skills and attitudes. Slower learners are given meaningful roles in the learning team while the gifted students serve as their tutors. Teachers and parents are not told about the research which documents the potentially harmful impact these strategies can have on gifted and talented children.

Recent publications from the National Research Center on the Gifted and Talented have documented that such approaches can restrict the learning of the most able students, causing them to stifle their own quest for learning in order to conform to the less rigorous standards of the group. Their assignment as unpaid and involuntary tutors can increase their sense of social isolation by making them appear different at a time in their lives when being different is devastating. These sensitive young adolescents are singled out as commodities to be used, while being denied their right to instruction appropriate to their level.

Some gifted and talented students cope by opting out of learning. They hide their abilities as a form of self-defense. Other coping strategies of gifted and talented students can undermine the teacher's purposes while appearing to make the heterogeneous-cooperative learning classroom work. When given group assignments, many GATE students resort to doing the work for the group and allowing them to share in the credit. It is easier than fighting for reason and justice. Through this coping strategy, nobody learns, but the assigned tasks are done well.

Impact

There are many horror stories about middle school students who are put "at risk" by an uncaring system that ignores their needs. Such a system can have a negative and lasting impact. Gifted and talented students learn lessons that are the unintended outcomes of neglect. Their once positive attitudes about learning and school become negative. School becomes equated with unpleasant repetition and peer rejection. Their self-esteem may be severely damaged. They begin to discount their own self-worth because everyone else does. They lose confidence in their abilities, and their performance in school takes a nose dive. Parents panic at the prospect of their young scholars becoming potential dropouts.

Common sense and substantial research confirms that the situation described above does not have to exist. Gifted and talented middle school students thrive in an environment where achievement is the norm and excellence is appreciated. They can find academic learning to be interesting and challenging in a supportive atmosphere where the development of individual abilities is seen as the purpose of education.

There are some outstanding middle schools in California, schools that are justifiably proud of their success with all students, including the gifted and talented. These schools provide differentiated instruction and special program opportunities so that their most able students are challenged to achieve in a supportive peer environment. School leaders are bravely withstanding the pressures to climb on the bandwagon and restructure around the trends of heterogeneous grouping and cooperating learning. School personnel who continue to provide excellent programs for gifted and talented students need the support of their colleagues and their community. They need to know that they are not alone. There are others who are also holding the line for excellence.

The ATS Experience

An example of a program showing the capabilites of middle school students in an appropriate environment is the Academic Talent Search (ATS) at California State University, Sacramento. This is a summer program designed to develop the academic talents of middle school students. Tests are used to assist in the process of selecting a field of study that is interesting and challenging to the students. Enriched classes such as forensic science, problem solving, and the history of the middle ages offer students opportunities to explore subjects they don't have at their regular school. Accelerated classes such as Algebra I and II, first and second year Spanish, and computer programming, provide access to subjects typically reserved for older students. Study skills and keyboarding (typing) classes provide the rapid acquisition of skills vital to success in an academic environment. Instruction in all classes is challenging and fast-paced, not watered down to the age of the participants. Instructors are university professors and high school teachers who know their content and know how to teach it.

Achievement levels in ATS have been remarkable. In six weeks of study, mathematics students have demonstrated mastery of content that usually takes nine months or more to learn in a traditional school. Foreign language learning for many students is equally impressive. Learning a "year's worth" of French, Spanish, or Latin in six weeks is common. Writing stu-

dents have shown proficiency that equates to the level of first-year college students. While it is more difficult to document objectively, students in the enrichment classes have demonstrated extraordinary achievement, according to their instructor's assessment.

One might expect that high levels of achievement in such a short time can result only from a hothouse environment in which all else is forsaken except study. A survey of students at the end of the summer revealed a more positive pattern. Students achieved more than they thought possible and still had time for other activities. Students who attended classes in mathematics, writing, foreign language and other courses rated their homework and their effort.

RATE YOUR EFFORT

	Math	Writing	Foreign Lang.	All Courses
100 Percent	31%	45%	45%	49%
75 Percent	54%	40%	42%	40%
50 Percent	12%	15%	8%	9%
25 Percent	3%	0%	2%	1%
0 Percent	0%	0%	2%	1%

HOMEWORK HOURS

	Math	Writing	Foreign Lang.	All Courses
10 + per week	9%	17%	12%	7%
7-10 per week	23%	36%	20%	14%
4-6 per week	41%	26%	33%	22%
1-3 per week	19%	18%	27%	30%
Less than 1	9%	2%	7%	26%

The majority (89%) of students in all classes rated their effort at 75% or higher while they devoted an average of three to four hours of homework per week. It was interesting to note that math and writing students felt their level of effort was slightly less than the average for all other classes, yet their average homework time was slightly higher (between six and eight hours per week).

When asked about the level of difficulty of homework, students reported it was "just right." About a third of the math and writing students thought the homework was too much or too hard. Only a quarter (24%) of the students in all classes felt their homework was too much or too hard. A few students thought the homework was too easy and wanted more.

HOMEWORK WAS...

	Math	Writing	Foreign Lang.	All Courses
Too Much (Hard)	31%	36%	19%	24%
Just Right	61%	63%	75%	67%
Too Little (Easy)	8%	1%	6%	9%

But academic achievement is not always the most important outcome of ATS. How the students felt about the experience and its impact on them is more important than what they studied. Student evaluations at the end of their classes indicated they felt a new empowerment, they gained a sense of personal strength because they succeeded at a challenging task through their own efforts. They discovered that learning can be fun and it is OK to be smart in a environment where the norm is excellence not mediocrity.

Parent Survey

After last summer's program ended, questionnaires were sent to parents to determine changes they could see in their students. Parents were asked why their student applied to ATS and how they benefitted from the experience. Their responses are summarized below.

What was the primary reason your student applied to ATS?

Academic Acceleration	72%
To give him/her something to do	13%
To earn high school credit	6%
To overcome deficiencies	6%
Other Reasons	3%

When asked what was the most important outcome, parents gave a wider range of responses.

What needs have been met by ATS?

Academic	33%
Self-reliance	27%
Self-esteem	24%
Social-Emotional	15%
Other	1%

ATS is conducting an extensive research project to follow its former students through high school and college. The purpose is to assess, among other things, what impact ATS can have on middle school students over the long term. The preliminary results are most impressive. Former students report that their experiences in ATS have had strong, long-lasting, positive benefits. They report growth in self-confidence and independence from experienc-

ing success in academic pursuits. They report that long after the new knowledge has faded from immediate recall, they still remember fondly the summer they worked so hard and achieved so much.

Conclusion

Adolescents, especially gifted and talented ones, need to engage in activities that are challenging and meaningful, but many middle schools are insensitive and unresponsive to these needs. The blame may lie with the students who are entering puberty and are experiencing dramatic gland development when their brain growth is in a fallow period. However, not all children experience these problems at the same time. Individual variability exists in gifted adolescents, too. The curriculum at the middle school is primarily a review of content which many gifted and talented students have already mastered. The current educational trend of heterogeneous grouping and cooperative learning may be stifling the most able learners. Gifted and talented students often develop coping strategies which depress their performance, or they may undermine the system by doing everyone's work. In consequence, the middle school may be hazardous to the academic, social and emotional well-being of its most able students. While some middle schools are doing an outstanding job with their gifted and talented students, they feel heavy pressures to change. The ATS program at CSUS is an example of a program that is holding the line for excellence. ATS has demonstrated positive benefits for this age group through academic challenge in a supportive atmosphere. Students and parents have reported positive impact in academic achievement, self reliance, and self esteem. Preliminary findings of a long-range follow up study are very encouraging for highly motivated and academically talented adolescents.

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Gosfield

Continued from page 1

of six main components:

- Classroom training
- 6th grade: Problem Solving – Foster Park
- 7th grade: Decision Making/Group Dynamics
- Individual community service
- Volunteer Day
- Leadership Conference – Westmont College

There are two types of classroom training. The first is informal, and is an enhancement of a process that arises in classrooms in general. Whenever group projects are assigned or class presentations prepared, leadership is assumed through the various tasks students carry out in relation to the project or activity. In this aspect of our GATE program, the nature and process of leadership are advanced by identifying and providing tools for organization and effective completion of the particular assignment.

A second type of classroom training is more specific. Instructional strategies are carefully designed to develop an understanding of leadership, together with the traits and skills needed to become effective leaders. When students generate their own definitions, skill and trait lists, not only are they more aware of the concepts, but they also achieve a greater sense of personal involvement in the actualization of these traits. Our teachers use a variety of means to accomplish this, including brain-storming and discussion, group experiences, individual writing and artistic creations. One teacher has patterned his GATE classes after the U.S. Senate, with students acting as majority and minority leaders on a rotating basis. These activities are integrated with academic training throughout the year within individual classrooms.

The other five components of our program are more formalized and are generally district-wide activities, involving all of our middle school GATE classes. The first such activity occurs each fall, when 6th graders take part in "Foster Park Day". This is designed to introduce the youngest middle school students to the leadership training program.

In this project, one or two 6th-grade classes at a time are bused to a county park located at the edge of the city for a day-long series of problem solving activities. Students work in both large and small groups on a variety of tasks. For example, the students are required to create a large scale map (10' x 10') of the park, drawn to scale as accurately as possible, without teacher direction. This assignment, however, is only a device for bringing out two really

important problems that are inherent in every cooperative activity: the need for organization and for effective communication. After an initial period of haphazard collecting of information and mistakes made in transferring the information to the map, the students are soon compelled to recognize the need for effective organization and communication, and to take steps to make them occur.

This 6th grade Foster Park Day has been so successful that we are now developing a similar special activity for 7th graders to occur in February or March of each year. The teachers have chosen to focus the 7th grade project on Decision Making and/or Group Dynamics, with activities selected to provide practice and improvement in those areas. As in the 6th grade activity, students will go off-campus for the day-long event.

Another component of our program is the community service required of all students in GATE social science classes. Many high schools across the nation are beginning to require community service for graduation. Here too, we think that students can gain from this experience much earlier than at the high school level.

In this program, each student is required to perform a specified number of hours of community service as part of the social science class homework. Examples include: doing yardwork or clean-up projects for elderly neighbors, churches or community parks; assisting with youth athletics; volunteering for social service agencies; tutoring and other school related volunteer work. All of this must be unpaid work. A contract is signed by student, parent and teacher, and completion of the work is verified by the parent before credit is granted. An alternative, to research the lives of people who have made significant contributions to the welfare of others, is offered to those who choose not to participate in the community service, however, students rarely make the research choice when they see the personal satisfaction and excitement which comes from active community service work.

This year we are asking students to write about their community service experiences, and plan to include selections from these writings in the District Middle School GATE literary work published each June. We believe that the training students receive in their community service participation is a meaningful contribution to the development of responsible leadership.

As an extension of individual contribution to the community, we are currently making plans for our second district-wide GATE Volunteer Day. One student is selected from each middle school GATE class throughout the district to serve as a member of the planning committee. One teacher advisor from each school also serves. The planning committee members solicit input from their classes and then determine the activities, guidelines, publicity, and the logistics required in bringing more than 350 students together on a single day to participate in a variety of volunteer activities around the city.

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Last year's activities included planting trees and shrubs at five elementary school sites, visiting and sharing time with older people at two homes for the elderly; performing a beach clean-up, creating a large-size map of the U.S. at one elementary school site, and reading to primary students at two elementary school sites. Using minimum wage guidelines, we estimated that our students contributed more than $4,000 worth of services to the community.

The response from all who participated — students, parents, teachers, principals and other adults — was tremendously positive. It was an extraordinary learning experience for all involved, and was so successful that a similar activity is being planned for this year.

Finally, our district participates in a regional leadership conference for gifted 7th and 8th graders, sponsored by the Pacific Region of the California Association for the Gifted and held at Westmont College, located about 25 miles from Ventura. Some 150 students and adult facilitators come from the counties of Ventura, Santa Barbara and San Luis Obispo to spend two and a half days in leadership training activities. The participants then return to their own schools to implement the training they gained at the conference.

As a CAG Demonstration Site, we in Ventura are currently creating a video tape highlighting the various components of our program, and compiling a teacher leadership handbook which we hope to share with others.

References

Ellis, J. (1990). Leadership Strengths Indicator (inventory with manual). Trillium Press.

Feldhusen, J., & Kennedy, D. (1988). Preparing Gifted Youth for Leadership Roles in a Rapidly Changing Society. Roeper Review, 10(4), 226-230.

The Gifted Child Today (1988). GCT Inc. November/December. (A special issue on leadership.)

Hermanson, D. (1986). Issues in Gifted Education: A Collection of Readings, 247-266, Gifted and Talented Education Program, San Diego City Schools.

Karnes, F. & Chauvin, J. Leadership Skills Inventory. ProEd.

Renzulli, J., *et al.* (1987). Scales For Rating Behavioral Characteristics of Superior Students. Creative Learning Press.

Roets, L.F. (1986). Leadership: A Skills Training Program. New Sharon IA: Leadership Publishers.

Sisk, D. & Rosselli, H. (1987). Leadership: A Special Kind of Giftedness. NY: Trillium Press.

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